# OWM's Analysis of the 2020 NCWM Interim Meeting S&T Agenda Items

**OWM's comments are intended to offer technical information to the NCWM for its consideration in its deliberations before the Conference.**

## Subject Series List

## Table A
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## Table B
## Glossary of Acronyms and Terms

| Acronym | Term | Acronym | Term |
|---|---|---|---|
| ABWS | Automatic Bulk Weighing System | NCWM | National Conference on Weights and Measures |
| AAR | Association of American Railroads | NEWMA | Northeastern Weights and Measures Association |
| API | American Petroleum Institute | NIST | National Institute of Standards and Technology |
| CNG | Compressed Natural Gas | NTEP | National Type Evaluation Program |
| CWMA | Central Weights and Measures Association | OIML | International Organization of Legal Metrology |
| EPO | Examination Procedure Outline | OWM | Office of Weights and Measures |
| EVFS | Electric Vehicle Fueling Systems | RMFD | Retail Motor Fuel Dispenser |
| EVSE | Electric Vehicle Supply Equipment | S&T | Specifications and Tolerances |
| FHWA | Federal Highway Administration | SD | Secure Digital |
| GMM | Grain Moisture Meter | SI | International System of Units |
| GPS | Global Positioning System | SMA | Scale Manufactures Association |
| HB | Handbook | SWMA | Southern Weights and Measures Association |
| LMD | Liquid Measuring Devices | TC | Technical Committee |
| LNG | Liquefied Natural Gas | USNWG | U.S. National Work Group |
| LPG | Liquefied Petroleum Gas | VTM | Vehicle Tank Meter |
| MMA | Meter Manufacturers Association | WIM | Weigh-in-Motion |
| MDMD | Multiple Dimension Measuring Device | WWMA | Western Weights and Measures Association |

**Details of All Items**
*(In order by Reference Key)*

# GEN – GENERAL CODE

## GEN-20.2 G-T.1. Acceptance Tolerances

| Organization (*) not submitted | Gen-20.2 – G-T.1 Acceptance Tolerance- Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |
| WWMA | | ✔ | | | | | |
| SWMA | | ✔ | | | | | |
| CWMA Interim (Fall) | | | ✔ | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | ✔ | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | ✔ | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** OWM recognizes that there are statements addressing the application of acceptance tolerances in different sections of NIST HB 44 that appear to be in conflict. As shown in the Item Under Consideration, the current General Code requirement G-T.1. states acceptance tolerances are applied to devices that:

- are being placed into commercial service for the first time;
- are being officially tested for the first time if placed into service within the preceding 30 days;
- are being returned to commercial service after rejection based on performance and have been repaired within the preceding 30 days;
- are being officially tested within 30 days following major reconditioning or overhaul; or
- undergoing type evaluation.

What is not explicitly stated in this General Code requirement is whether acceptance tolerances are to be applied within 30 days after any *routine* calibration adjustment(s) have been made to improve the device's performance. This type of adjustment would not be prefaced by an official rejection of the device. The absence of any statement addressing this specific circumstance has led to differences in interpretation regarding the appropriate application of acceptance tolerances. This difference in interpretation is fueled when the General Code requirement (G-T.1.) is compared to the statement found in HB 44 Appendix A - Fundamental Considerations, Section 2.1. Acceptance and Maintenance Tolerances where acceptance tolerances are addressed. In Appendix A, acceptance tolerances are described as follows:

> "Acceptance tolerances are applied to new or newly reconditioned ***or adjusted equipment*** and are smaller than (usually one-half of) the maintenance tolerances."

It should be recognized that some commercially used equipment is officially tested and not afforded the less stringent maintenance tolerances. In general, this includes volumetric equipment such as graduated glassware, dry measure apparatus. This is done with the understanding that accuracy for this type of apparatus does not significantly degrade over time. Thus, it would be reasonable to presume that only equipment whose performance is expected to deteriorate over periods of use should be afforded the application of maintenance tolerances. In other words, maintenance tolerances are applied to equipment that can reasonably be expected to gradually lose accuracy and performance over periods of time and use.

A strict interpretation of the statement in Section 2.1. of the Fundamental Considerations may prompt some to consider that since the device has undergone any adjustment within the preceding 30 days, that device should be capable of meeting acceptance tolerances. Therefore, some weights and measures officials have required devices that were recently adjusted (within 30 days) to comply with the more stringent tolerances whether or not that device had been officially rejected following an inspection and test within that 30-day period.

OWM recognizes that the proposed changes to G-T.1. in this item could help to clarify when acceptance tolerances are applied. Following some extensive research into the history regarding the application of tolerances however, there was no advocacy evident for the application of more stringent tolerances to equipment that had undergone adjustment unless, that corrective action was preceded by an official rejection of the device. This research included a review of early Bureau of Standards publications (as far back as 1918) where the application of tolerances was addressed.

We also note however, that the proposed language under the new sub-part (d) could lead to confusion since it is not specified what type of "evidence" that calibration has been performed in the previous 30 days would justify the application of acceptance tolerances. OWM questions if acceptance tolerances are to apply within 30 days after any routine adjustment (i.e., regular periodic service on the device), will weights and measures jurisdictions have their field officials perform a review the device owner's records of service to establish that any adjustment made was done to the device within the preceding 30 days?

OWM notes that changes to G-T.1. were recommended in 1990 when a proposal was submitted that would have had acceptance tolerances apply whenever a security seal was broken. If the previously referred to "evidence" is to include a broken security seal on the device, it is conceivable that the seal could have been broken to make changes that did not affect the accuracy. This 1990 proposal was withdrawn following comments stating that the broken seal would not always positively indicate an adjustment affecting the device's accuracy.

This issue was also addressed during the 2009 NCWM Annual Meeting where comments were offered in opposition to the application of acceptance tolerances following "metrological adjustments." The proposal was not adopted for reasons related to some device owners entering into service contracts that could include routine adjustments. At that time, those opposing this change also pointed out that devices may not be capable of continuously operating within acceptance tolerances however, could be maintained to operate within maintenance tolerances. The proposed changes to G-T.1. at that time were withdrawn due to a lack of support from industry and weights and measures officials.

OWM recognizes two opposing perspectives for the resolution of this matter. There are those that will support the idea when adjustments to commercial weights and measures equipment are made within a reasonable period of time, that equipment should perform within acceptance tolerances. If this notion is supported, then the proposed changes to G-T.1. appear to be appropriate. Alternatively, others may take the position that device owners who proactively have entered in a contract for periodic routine service on their equipment will be penalized when that equipment is consistently held to more stringent, acceptance tolerances.

When a device owner has entered into a contract with a service agency to provide routine inspection and maintenance on their equipment. The frequency of these service visits will vary; such as on an annual or semi-annual basis although some may occur as frequently as on a monthly basis. During those contractual inspections, well-intentioned service agents may make minor adjustments to a device to ensure the best accuracy and performance from that device. As stated in the General Code requirement G-UR.4.3., adjustments made to equipment shall be made to bring the performance errors to as close to zero as practicable. The equipment owners/operators who are paying for this proactive service do so with the expectation that their devices are operating consistently at peak efficiency and accuracy. According to General Code requirement G-UR.4.1. this is the owner/operator's responsibility. This practice will may provide more equitable transactions based on the measurements/weighments made by that equipment.

Considering potential consequences of having equipment held to more stringent performance requirements on a frequent basis, owners/operators may elect to not have any regular service done to maintain optimum performance of their devices. This could potentially lead to less accurate equipment and larger errors in measuring and weighing operations during the interim period between official examinations. The change being proposed to G-T.1. could potentially lead to service agents ignoring errors that fall within the broader range of maintenance tolerance in order to avoid the application of acceptance tolerances when an official examination is anticipated within 30 days.

As found in HB 44 General Code G-UR.4.3. "Use of Adjustments," service agents are expected to make any adjustments to a device so as to bring its performance to as close as possible to zero error. This expectation would support the notion of maintaining all weights and measures commercial device in prime operating condition. Therefore, it would be reasonable to expect that devices covered under a regular, routine service contract would be capable of performing within acceptance tolerances.

OWM notes that an alternative to the proposed change of the General Code requirement, G-T.1. could be to amend the Fundamental Considerations in Appendix A of HB 44 under Section 2.1. by deleting the wording "…or adjusted…" in that sentence. OWM believes however, that if a change to the Fundamental Considerations such as this would be adopted, it should also be accompanied by a specific explanation including details for why acceptance tolerances are not to be applied to equipment that has undergone only routine adjustment. Additionally, if this alternative was supported, OWM would recommend changes to G-T.1. be made to explicitly exclude the application of acceptance tolerances to equipment that has undergone routine adjustment that was not precipitated by an official rejection.

**WWMA:** - 2019 Annual Meeting. The Committee agrees that item has merit. The Committee also agreed that item is not yet fully developed, and the item should move forward as a developing item. The Submitter is encouraged to address all requirements currently in NIST Handbook 44 that are lacking in consistency with regard to the application of acceptance tolerance. The Committee would also encourage additional input from other regional associations and stakeholders as to what tolerances should be applied in these cases.
During the open hearing session, the Committee heard testimony from Ms. Michelle Wilson (AZ) submitter of the item. Ms. Wilson pointed out that there are inconsistent references in HB 44 including G-UR.4.3., G-T.1., and Appendix A, section 2.1. Arizona is questioning the correct tolerance (maintenance or acceptance) to apply following adjustments to a device. Arizona does not have a position on which tolerance should apply and is seeking clarification on this issue.
Mr. John Barton (NIST) stated that this issue has been noted in the past and that it presents concerns to device owners and service agents as to the implications of making routine adjustments during regular service intervals. For example, a service agent may have reservations about making adjustments to a device knowing that there would be a possibility that the device would be subject to the application of acceptance tolerances by regulatory agents within 30 days following such adjustment.

**SWMA:** - 2019 Annual Meeting. During the Open Hearings the Committee heard comments from Hal Prince (Florida) who stated that the submitters' main objective with this item is to gain clarity on when to apply Acceptance Tolerance. After considering this item the Committee recommends this item become Developing. The committees' main concern on this issue is the language "where evidence exists." The committee would like that language to become more defined.

**NEWMA:** - 2019 Interim Meeting. The Committee agrees with the body that the changes proposed are unnecessary and that the item should be withdrawn. During open hearings, the Committee heard from Mr. Jim Willis (NY) and Mr. John McGuire (NJ) who believes the proposal has no merit and is redundant.

**CWMA:** - 2019 Interim Meeting. Several regulators recommended the item be withdrawn. Adding this requirement could place an undue burden on the owners of devices that are capable of performing within applicable tolerances as currently required by G-T.1.

**SMA: -** 2019 Fall Meeting. The SMA opposes this item.
Rationale: Handbook 44 specifies in section G-T.2. that Maintenance tolerance shall apply to equipment in actual use. Only devices that have undergone major reconditioning are required to meet Acceptance tolerances.

## BLOCK 2 ITEMS (B2) DEFINE TRUE VALUE FOR USE IN ERROR CALCULATIONS

- **B2: GEN-20.1 G-T.3. Application and Appendix D – Definitions: true value**
- **B2: SCL-20.1 N.1.12. Reducing Rounding Error, T.1. General, T.N.2.1. General.**

- **B2: SCL-20.2 Verification Scale Division**
- **B2: SCL-20.3 S.5.4. Relationship of Minimum Load Cell Verification Interval to the Scale Division**
- **B2: SCL-4 Table 3. Parameters of Accuracy Classes.**
- **B2: SCL-20.5 Table S.6.3.a. Marking Requirements, Note 3.**
- **B2: SCL-20.6 T.N.1.2. Accuracy Classes and T.N.1.3. Scale Division.**
- **B2: SCL-20.7 Table 7. Maintenance Tolerances**
- **B2: SCL-20.7 Table 7. Maintenance Tolerances**
- **B2: SCL-20.8 Table 8. Recommended Minimum Load**
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| Organization (*) not submitted | B2 – Define True Value for Use in Error - Initial Status – New Item (9 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM (either D or A with modifications) | | | | | | | |
| WWMA | | | ✔ | | | | |
| SWMA | | ✔ | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | ✔ | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | ✔ | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**

The different proposals included in this block present several very significant changes to the General and Scales codes of HB 44 with respect to:

- the application of HB 44 tolerances and the determination of device error during performance tests; and
- clearly identifying differences between "d" and "e" so that code requirements are correctly applied to the correct entity

OWM is supportive of some changes being proposed; others not.

Since the ratio of "e" to "d" is most often 10 to 1 (i.e., on Class I and II scales with different values of "e" and "d") the selection of one value over the other for the purpose of applying HB 44 requirements is of chief consequence. For this reason, OWM believes it is important to consider the views of others in the W&M community on these proposed changes and not rely solely on the perspective of the submitter.

OWM offers the following recommendations and comments to the individual items in this block:

**B2: Gen 20.1 Application of Tolerances (G-T.3) and add new definition of "true value"**

It may be beneficial to include error formulas in paragraph G-T.3., because the formulas might provide better understanding of how the direction (plus or minus) of error is associated with how one views its determination. That is, direction of error depends on whether the error being observed is viewed as a "delivery error" or a "registration error" and this has long been somewhat of a confusing concern to many. We offer the following two examples to show how direction of error is affected based upon how one views its determination:

- When a vehicle scale under test indicates a 10 lb greater value than the applied test load, the 10 lb error is considered a "registration error" and is recorded as + 10 lb. In this example, the scale is over-registering because it provides an indication that is 10 lb greater than the applied test load. Customers purchasing product from this scale would receive less product than the amount being charged (i.e., they would receive only 10,000 lb for each 10,010 lb charged) even though the error is considered positive (plus).

- In contrast, a minus (–) 6 cubic inch error read from a 5-gallon prover used to test a retail motor-fuel dispenser is considered a "delivery error." Just as with the vehicle scale, the meter has over-registered by providing an indication that is greater than the amount actually delivered; but in this case the direction of error is minus because it is viewed as a "delivery error," instead of a "registration error." As with the vehicle scale, customers would receive less product (in this case fuel), than the amount charged.

We think input from the community on these proposed changes, especially the regulators, is needed because of the importance of being able to explain how error in a device is determined and to whose favor that error benefited during legal proceedings. This is particularly important in light of terminology used by manufacturers and the service community when making adjustments to devices. This will also affect how error is recorded.

OWM also notes there is an apparent error in part (b) of the proposed changes to G-T.3. The sign included in the parentheses following the word "minus" should be "-" rather than "+" as it is currently shown.

OWM opposes use of the term "true value" in both formulas. There is no standard in existence having no error or no uncertainty. Might the submitter consider use of a different term, e.g., "calibrated standard," "reference standard," or something similar, and perhaps consult with the NCWM Field Standards Task Group to define it.

**B2: SCL-20-1 N.1.12 Reducing Rounding Error, T.1. General, T.N.2.1. General**

OWM offers the following comments relating exclusively to proposed new paragraph N.1.12.:

- We're confused by the proposed text, "the rounding error resulting from rounding the indication to the nearest digital division shall be reduced whenever the scale division d is greater than 0.2 e." We interpret this to mean that when "e" and "d" are equal values on a digital scale, error weights would need to be used when verifying performance. Based on this proposed text, error weights would also need to be used when testing a Class I and II digital indicating scale with different values of "e" and "d" when the ratio of "d" to "e" was 2 to 1 (d = 0.5e). Although we favor the concept of reducing digital rounding error by using error weights to test, this may not be practical for field testing, nor do we view it as a necessity. We recognize scales equipped with digital indication are unable to display values in increments less than the value of their smallest division. Current NIST training courses for scales include proper procedures for applying HB 44 acceptance and maintenance tolerances, including procedures for applying tolerance when that tolerance happens to be ½ d on a digital scale.
- We believe the proposed paragraph was likely drafted based on an assumption that the value of "d" and "e" are equal (as is the case for most scales) or that "d" would equal 0.5 e, which is a permissible design for Class I and II scales. Depending on a scale's Accuracy Class, however, the value of a scale division "d" can be equal to, less than, or greater than "e." We wouldn't know how to apply proposed new paragraph N.1.12. for each of these designs. For example, how is the rounding effect reduced through the use of error weights when the value of "d" is greater than "e" (as can be the case for Class III and Class IV scales)? An additional comment relating to the reduction of the rounding effect; nowhere is it specified in the proposal to what degree the rounding error needs to be reduced.
- Field officials may not have test weights small enough to perform the reduction specified on some scales. For example, on a class II scale with d = 0.005 g and e = 0.01 g, the reduction would likely require decimal milligram test weights. Weights this small are not typically provided to field staff, nor do some of the NTEP labs possess them.
- Use of error weights to determine scale error extends the amount of time it takes to perform a test and will also require training on how this is to be done.
- Paragraph N.1.12. already exists. The proposed new paragraph would be titled N.1.13.

The clarifying text proposed for paragraph T.1 General and T.N.2.1., we believe is appropriate; and although we've not received any recent inquiries expressing concern with the existing text in those paragraphs, we do think the proposed additions improve clarification on how tolerances are to be applied.

**B2: SCL-20.2 Verification Scale Division**

The proposed new title for paragraph S.1.2.2. provides better indication of the paragraph's substance. We do think the proposed title should be expanded to include text identifying (e) and (d) as "values." We propose the following title: "Scales Designed With a Value of (e) Not Equal to (d)"

It is appropriate to make paragraph S.1.2.2.2. a user requirement and delete it as a specification because it is a user's responsibility to select a suitable scale. This should be shown (in the proposal) as striking paragraph S.1.2.2.2. and adding a new UR.3.X.

Values of (e) do not round to the nearest increment when (e) and (d) are different values on Class I and II scales. It is not until the full range of the (d) resolution is exceeded that the (e) value advances or declines, whichever the case. This truncating effect can be used to one's advantage when a scale is used in a direct sale application by simply ignoring the (d) value and basing transactions on (e) alone. Additionally, a displayed value in which the numbers place furthest out is differentiated from the rest is confusing and begs the question what that digit is to be used for to those unfamiliar with how the scale was designed to operate (e.g., customers). Consequently, as a general rule we believe "e" and "d" should be equal value on scales used for direct sales and oppose Option 2 of the proposal for this reason.

We note that OIML R 76 Non-Automatic Weighing Instruments <u>does not</u> permit auxiliary indicating devices, of which a differentiated scale division is a type, on Class II scales used for direct sales to the public. R 76 specifies that the interpretation of what is included in "direct sales to the public" is left up to national legislation. We interpret "direct sales to the public" to be less restrictive than "direct sales," which means <u>all</u> direct sales (i.e., to the public and otherwise). In the US, there may be some wholesale applications that warrant allowing "direct sale" use of a Class I or II scale with different values of "d" and "e" (e.g., two gemstone dealers trading precious gems and both knowledgeable of how the scale in which the gems are being weighed functions, etc.). If an exception were made to allow "direct sale" use of such scales in certain wholesale applications, such exception should make clear it applies only to those scales that are used solely in wholesale application and not to those that are used for both wholesale and retail. Alternatively, or in addition, the Committee may want to consider language that would limit use to specific types of applications as deemed appropriate by the Committee.

**With respect to all remaining items in Block 2,** we recognize there are paragraphs and tables of information throughout the Scales Code of HB 44 where it is not clear which term, "value of the scale division (d)" or "verification scale division (e)" is appropriate for correct application of these paragraphs when "e" and "d" are different values on a scale. While it might seem an easy solution to simply conclude that in all cases the application of HB 44 requirements is to be based on the verification scale division (e), we know of instances where scale manufacturers have designed their Class I and Class II scales to comply with one or more existing HB 44 requirements based on the "d" value for scales in which "d" and "e" are different. Additionally, based on our research and understanding of the operational characteristics of Class I and Class II scales with different values of "e" and "d," it should not be taken for granted that when a HB 44 paragraph specifies "d," the intended increment is, in fact "d," and not "e."

We appreciate the submitter's efforts in proposing changes to try and make clear which value should the application of some paragraphs be based, but we also believe the magnitude of this effort to clean up the Handbook with respect to "e" and "d" should involve input from the weighing community as a whole and would require specific identification of proposed changes. We believe changes are long overdue based on the frequency of questions OWM receives relating to this concern. To this end, over the past two years OWM has submitted several new proposals to the Weighing Sector and NTEP labs and has reached out to U.S scale manufacturers of Class I and Class II scales and other weighing experts to determine their views on the correct application of HB 44 requirements to scales in which "e" and "d" are different values. This work is ongoing, and we can report that much progress has been made, but not to the extent where we think we're ready to move forward by proposing numerous amendments to a large portion of the Scales Code. We believe the best approach forward is the one currently being taken; that is, to involve as many manufacturers of Class I and II scales as possible and others in discussions to determine which value "e" or "d" should

the application of existing HB 44 requirements be based. We invite the submitter of this block of items to join in the discussions. Once a consensus is reached, changes to HB 44 can then be proposed to provide the clarification needed and new test procedures drafted to determine compliance with those changes.

**WWMA:** - Spring Interim Meeting. Block 2 includes the following individual items: GEN-20.1; SCL-20.1; SCL-20.2; SCL-20.3; SCL-20.4; SCL-20.5; SCL-20.6; SCL-20.7; and SCL-20.8.
During the open hearings the Committee heard testimony from Mr. Kurt Floren (LA County, CA.) stating that footnote #1 under Table 3 in item SCL-4 should have the words "be" and "to" stricken to correct grammatical errors. Mr. Kevin Merrit (ID), stated that the term "certified" as used in the proposed new language being recommended under item SCL-20.1 for Scales Code paragraph T.1. General, should be clarified/defined. He suggested the replacement of "certified" test load with language more in line with NIST traceable standards.
Regarding item SCL-20.2, Mr. Steve Harrington (OR) commented that he still believes there is merit in the proposed changes but suggested removing the retroactive date to allow devices now in service to remain in service. Mr. Russ Vires (SMA) provided some history of the use of both "d" and "e" for scales and that field inspectors did not have the appropriate test weight to properly test these scales to the finest resolution. While supported initially by the SMA, it was not realized that this proposal would have unintended consequences related to the jewelry industry where "d" is commonly used in weight determinations. The SMA recommends that the retroactive date be eliminated to allow manufactures additional time to change the designs on their equipment and so existing scales can continue to be used. Mr. Vires also suggested that this requirement could be formatted as a user's requirement.
Mr. John Barton (NIST) stated that the exclusion of jeweler's scales in this requirement could provide reason to exclude other applications and this may be a "slippery slope."
Mr. Harrington stated that he could also support the proposal formatted as a user requirement.
The Committee agreed that this proposal does not address any known significant issues and has the potential to create additional confusion. The Committee agrees that the changes proposed are unnecessary and that the item should be withdrawn.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard comments from Diane Lee (NIST) who expressed concern about whether or not "True Value" is the appropriate term to be used in this item. The Committee also heard comments from Tim Chesser (Arkansas) who stated that he doesn't like the "True Value" language. The Committee also heard comments from Russ Vires (SMA) who stated that the Scale Manufacturer's Association has not met on this issue. Steve Benjamin (North Carolina) also pointed out two typographical errors. On page 7, lines 12 and 17, the "(+)" next to "Minus" should be changed to "(-)". After consideration of this item the Committee recommends this item become Developing. The committee would like more input from other regions on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee agrees with the body that the item has merit and should be assigned a Developing status. No comments were heard during open hearings.

**CWMA:** - 2019 Interim Meeting. Comments were received in support of these items. There was concern that the definition for "true value" may not be appropriate. There are some other editorial issues that need to be addressed including footnote 1 in Table 3. The use of the term verification scale division in Table 6 may also be confusing in instances when the division in use is not the value specified by the manufacturer.

**SMA:** - 2019 Fall Meeting. The SMA opposes the item being presented as a Block.
Rationale: The only commonality between the items in the Block is the submitter. The SMA recommends that the National S&T Committee breaks the Block into separate proposals going forward so they can each be evaluated based on their merit.

# SCL – SCALES

## SCL-17.1 I S.1.8.5. Recorded Representations, Point of Sale Systems, Appendix D-Definitions: tare

**Originally SCL-2**

| Organization (*) not submitted | SCL – 17.1 – S.1.8.5. Recorded Rep, POS Systems, App D - Initial Status – I (1 Items), 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | ✔ | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | ✔ | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | ✔ | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST-OWM:** OWM believes this item should be considered of utmost importance to any consumer wanting to be able to determine if tare weight was deducted for items weighed in their presence on a scale interfaced with a cash register in a POS system. OWM recognizes that the heart of this issue, is whether new replacement POS equipment should be required to provide the value of tare weight for transactions involving weight at some time in the future, and whether existing equipment be allowed to operate indefinitely under an exemption granted in 1973. At that time, the technology didn't exist to be able to provide this information cost efficiently. If the existing is required to be replaced with new equipment, the consumer would be provided with an indication that tare has been taken on items weighed at checkout, which is a requirement of other scales used in a direct application (e.g., retail-computing scales).

The Food Marketing Institute (FMI) and other grocery industry associations have opposed this item (in both written comments to the Committee and during Committee open hearings) since its introduction in 2017. The predominant reasons offered by those in the grocery industry for opposing this item has been the cost of implementation and that customers aren't interested in viewing the tare weight information. OWM is not aware of any detailed cost estimates provided by the grocery industry to the TG, which, in OWM's view, has been a missing component of this commentary. Both versions of the current proposal address the cost concern by relaxing the time scale owners would have to comply. The delay in enforcement of any new requirement is understood as being a concession offered in an attempt to gain industry acceptance. OWM questions why retailers would avoid providing means for consumers to verify that the products they purchase by weight are being priced based on net weight and not gross weight. OWM would like to note that if detailed cost estimates for compliance with the proposed changes would be provided to the Committee in the future, it would be important for those estimates to show the additional costs associated with only having to comply with either version of the current proposal and not the entire cost of a new upgraded system.

OWM recognizes that the SMA also opposed this item; reporting from its 2019 Spring Meeting that regulatory officials routinely verify tare values in POS systems are accurate and that the proposal would provide little or no benefit to the consumer. OWM points out while some jurisdictions will verify tare values that are programmed into POS systems, the frequency of these verifications may be insufficient to cover the changes often occurring in tare material used and not all jurisdictions do perform these types of inspections. With respect to the SMA's comment the proposal would provide little or no benefit to the consumer, paragraph G-S.5.1. was intended to simply provide consumers the opportunity to be able to view the transaction information. OWM believes it is important customers be provided this opportunity for those consumers wishing to verify they are being charged fairly for the products they purchase.

OWM disagrees with the comment made by FMI at the 2019 NCWM Interim Meeting that it should be the choice of each retailer whether to include the tare value or the gross weight value on a receipt. The decision to include or

exclude information necessary for a customer to be able to determine if items were correctly weighed and priced during direct sale applications, should not be a decision made by any individual retailer.

OWM doesn't necessarily prefer one version of the current proposal over the other because both versions will achieve the same outcome over time. The following written comments and recommendations to this item (shown in the box below) were provided to the Committee prior to the 2019 NCWM Annual Meeting and remain unchanged:

When the Specifications and Tolerances Committee first reported its view of weights and measures enforcement considerations concerning POS systems and its incumbent technology in supermarkets in 1973, the following was part of the reporting:

> When commodities are weighed at the checkout stand with this type equipment, as is the case with use of existing equipment, it is a direct sale situation. All of the requirements of the Model State Weights and Measures Law and Handbook 44 directed to computing scales for over-the-counter sales, as in the delicatessen section, for example, are applicable.

> **G-S.5.1. General.** – All weighing and measuring devices shall be provided with indicating or recording elements appropriate in design and adequate in amount. Primary indications and recorded representations shall be clear, definite, accurate, and easily read under any conditions of normal operation of the device.

**NIST Handbook 44 Paragraph G-S.5.1.** (1973 and remaining unchanged through 2019)

The 1973 S&T Committee also provided its philosophy regarding the application of paragraph G-S.5.1. General (shown in the text box above) to these systems as follows:

> The philosophy expressed in this requirement is that the indications of weighing and measuring devices are readily and easily understood by all those affected. The key words in this paragraph are "clear," "definite," and "easily read." Consequently, the equipment must be so designed that
>
> the indications and printed representations must meet these criteria for the owner or operator of the equipment and the customer. The decision regarding the amount of time necessary for weight values to be displayed to the customer is based on this requirement. That is, the values displayed must be clear, definite, and easily read. They must be displayed long enough for the information to be fully comprehended by the customer. Paragraph G-S.5.1. requires primary indications and recorded representations to be clear, definite, accurate, and easily read under any conditions of normal operation of the device.

We can say with utmost confidence that weighing transactions occur so rapidly on many of today's POS systems, the information being displayed is not displayed long enough for it to be meaningful to the customer. We know this to be true based on our own experiences as customers purchasing products weighed and priced at today's retail outlets. Thus, paragraph G-S.5.1. is not being met today based on the 1973 S&T Committee's interpretation of it.

Not only does the rapid speed of a weighing transaction contribute to a customer's inability to interpret the information in a meaningful way, nowhere is there marking on most POS display equipment to indicate the weight values being displayed are "gross" or "net" values. Scales interfaced with cash registers provide a display of the live gross weight, but nowhere on the display is that indicated. Nor is there any indication to a customer that a tare has been deducted once a price look-up code has been entered for many of these systems. Therefore, it is not reasonable to state that the weight information displayed to a customer at the time a product is weighed is meaningful if it is not the weight value by which the transaction will be based.

The POS Tare Task Group considered whether the additional tare weight information might be made available from a display rather than requiring it to be recorded on the printed receipt. Members of the TG concluded the

information needed to be printed on the receipt for the same reasons we've made evident to show paragraph G-S.5.1. is not being met today. That is the TG agreed weighing transactions are completed so quickly on today's systems that a customer doesn't have sufficient time to understand the display information being provided. As a result, the TG concluded it should not be an option for this information to only be displayed. It needs to be printed on the receipt.

OWM views the current proposal as an opportunity to update the Scales Code to better harmonize the tare requirements for scales interfaced with cash registers in a POS System with retail computing scales also used in the same application (i.e., direct sale). There has always existed a difference in how requirements pertaining to the operation of tare are applied between scales interfaced with cash registers in a POS system versus retail-computing scales. Retail-Computing sales are required to provide an indication that tare has been taken and this is most often (but not always) satisfied by the scale providing indication to the customer and operator that the mode of operation has changed from gross to net once a tare has been entered or recalled. This requirement doesn't apply to scales interfaced with cash registers because the technology didn't exist to be able to provide this information cost efficiently when these systems were first introduced into the marketplace. Alternatively, it was agreed these systems would be required to print the net weight of each item weighed along with other sales information currently required. As a result, the only way a customer can tell if a tare has been taken for items weighed at the checkout is to remember the gross weight value indicated for each item as it is weighed and then compare those gross weight values to the net weight values printed on the receipt for those same items. This is a feat we, ourselves as shoppers, have not been able to master, particularly when purchasing multiple items that are sold by weight. Few customers would know to do this because most customers have little or no knowledge of such operational intricacies of these systems to know they function as described.

Some have commented in opposition to this item that the cost of implementation of the proposal would outweigh any benefit because 1) proper tare values need to be verified by inspectors and 2) consumers aren't interested in the tare weight information. With respect to the first comment noted, OWM agrees that proper tare, whether programmed or input at time of weighing, needs to be verified by weights and measures inspectors; but this is different than making evident to customers and operators that a tare was taken when products are weighed at checkout. Paragraph G-S.5.1. provides customers and scale operators the opportunity to be able to clearly observe all parts of the weighing transaction on items weighed in their presence (i.e., direct sale application). Declarations of net weight, identify, unit price and other information required on packages put up in advance of sale are not required for items weighed in a direct sale. This is because the customer is present to witness the weighing and all parts of the weighing transaction to include: scale is on zero before the load is applied, proper tare is taken, the correct unit price has been entered, scale operator hasn't manipulated the scale in any way, etc. Thus, weighed items sold in a direct sale are not regulated at the same level as packages put up in advance of sale, which are routinely inspected by weights and measures. We view the comment that customers aren't interested in viewing the tare weight information as being a little shortsighted; that is, being the opinion of some rather than an accurate representation of a collective view of all consumers. We too are consumers and wish to continue to be able to observe all parts of the weighing transaction when items are weighed and priced in our presence.

Given that many of the newer POS systems in use today are capable of providing not only a display of the tare value and net weight value of items weighed at checkout; but also print those values on the receipt, it is only reasonable to work towards requiring the tare weight information be printed on the receipt. OWM does not have a preference as to whether the addition of the tare weight information on the receipt be made nonretroactive or retroactive with a sunset date. We do encourage the Committee to keep this item active for the reasons provided herein.

**WWMA:** 2019 Annual Meeting. The Committee agrees that this item be given a voting status and recommends that additional input be solicited from the other regional associations and that input then be forwarded to the NCWM S&T Committee. The Committee agreed to support the non-retroactive version of this item as proposed in the item under consideration. The Committee also deliberated on the establishment of an effective date for the non-retroactive requirement. The Committee agreed to recommend that the effective date be January 1, 2024. The Committee heard testimony from Mr. Russ Vires (SMA) that the SMA had provided a position from their 2019 April meeting stating that this proposal would provide little if any benefit to the consumer. Mr. John Barton (NIST) stated that to not provide some indication to the consumer that tare has been taken violates the principle behind the General Code requirement G-S.5.1. That requirement states that weight indications for commercial transactions be clear, definite, and easily read. The consumer deserves to be assured that the commodity is being sold by net weight and that appropriate tare has

been deducted. He also noted that the TG assigned to this item has offered two versions of the proposal. One is non-retroactive version and the other is a retroactive version. The Committee is encouraged to consider the implications of the status for the proposed requirement. The retroactive version will require that all POS systems comply with the requirement, and the non-retroactive version would allow those systems that are currently in service to be grandfathered. Mr. Kurt Floren (LA County, CA.) stated he supports the retroactive version of this proposal as long as it is not cost-prohibitive however, he does oppose the item even if the proposal was adopted as non-retroactive. He also recommended that the term "defined" as it appears in both versions of this proposal should be replaced with "indicated" or "designated." Mr. Steve Harrington (OR) stated he was concerned with the potential that smaller businesses will need to absorb the cost to comply with the requirement if the retroactive version was adopted. **NEWMA:** - 2019 Spring Annual Meeting. Mr. Mike Sikula (NY) stated that NY opposes this item. He believes this will place an all-around burden on inspectors with no benefit. Mr. Russ Vires (representing the SMA) commented that the SMA opposes this item and believes inspectors are already sufficiently regulating tare. The NEWMA recommends this item continue to be developed as an Assigned item on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee agrees with the body that the changes proposed are unnecessary and that the item should be withdrawn. During open hearings, the Committee heard from Mr. Jim Willis (NY) who believes the proposal will cause consumer confusion because while the tare is printed, there is no guarantee that it will be correct. Mr. John McGuire (NJ) agrees with the comments from NY.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (SMA) who opposes this item on the grounds that it provides no benefit to the consumer. After consideration of this item the Committee recommends the non-retroactive version of this item be made a Voting Item

**CWMA:** - 2019 Annual Meeting. Mr. Loren Minnich, Chair of the NCWM POS task group, recommends the item remain as "assigned" and indicated that the TG will give an update at the Annual NCWM Meeting in July 2019.

Mr. Doug Musick (Kansas Weights & Measures) commented about scale operators using these devices by sliding items across the scale at a speed that does not allow the weight to display long enough for consumers to fully observe the weighing operation. Mr. Russ Vires (SMA) opposes the item because tare is routinely verified by regulators.

2019 Interim Meeting. Several comments were received in support of the non-retroactive version. There were suggestions that gross weight may be a better value to include since it could be clearer to consumers that they were charged on a net weight basis. We recommend the non-retroactive version move forward as a voting item and suggest the committee might consider replacing tare with gross weight.

**SMA:** - 2019 Fall Meeting. The SMA opposes this item.
Rationale: Since regulators verify that the tare values in POS systems are accurate, the SMA feels that the proposal would provide little or no benefit to the consumer, and opposes both Retroactive and Non-retroactive versions.

## SCL-16.1 A Sections Throughout the Code to Include Provisions for Commercial Weigh-in-Motion Vehicle Scale Systems

**Originally SCL-3**

| Organization (*) not submitted | SCL – 16.1 – Sections Throughout the Code to Include Provisions for Commercial Weigh-in-Motion Vehicle Scale Systems - Initial Status–A (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |
| WWMA | | | ✔ | | | | |
| SWMA | | | | ✔ | | | |
| CWMA Interim (Fall) | | | | ✔ | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | ✔ | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** OWM recognizes that a Task Group has been formed and that the Committee has assigned the Task Group to further develop this item. OWM is an active participant on that Task Group.

OWM had the understanding that the submitter would provide an opportunity for the TG to witness data collection from the preliminary testing of their WIM system in order to provide evidence that their claim for that type of WIM system complying with Class III L tolerances is valid. To date, only a very limited amount of data generated by Rinstrum, and which was not witnessed by any other TG members has been produced. Other members of the TG have raised questions regarding the validity and interpretation of the data provided. OWM, and other TG members have provided recommendations to Rinstrum for test procedures believed to be appropriate for this data collection. OWM looks forward to participating in this data collection process and is anticipating the opportunity to work with Rinstrum and to witness testing for data collection along with other members of the TG (and possibly others).

OWM also recognizes that the TG has held a single meeting (via webinar) since the 2018 NCWM Annual Meeting and it is OWM's understanding that the continued efforts of the TG are dependent upon substantiation of the submitter's claims on their system's performance.

OWM notes a difference in opinion among members of the Task Group regarding the establishment of appropriate test procedures for the official certification of these devices. OWM believes that appropriate test procedures developed for inclusion in NIST Handbook 44 must be: based on sound principles; provide confirmation of the declared performance capabilities; and verify the device's compliance with Accuracy Class III L tolerances (and other performance requirements) as stated in the Task Group's draft proposal.

An additional concern noted by OWM is that the proposed new requirement S.1.8.6. "Values to be Recorded, Weigh-In-Motion Vehicle Scales" is shown as being located under the parent paragraph of S.1.8. "Computing Scales." Since the focus of this proposal, WIM vehicle scales are not what would likely be considered "computing scales," this paragraph would seem to be more appropriately located elsewhere (e.g., a new S.1.14.).

In view of these current circumstances, OWM would recommend that the assigned status of this item be changed to developing and returned to the submitter.

**WWMA: -** 2019 Annual Meeting. The Committee recommends this item be withdrawn due to the lack of substantiated evidence that the submitter's claims of their device performance capabilities can be validated.

Mr. Russ Vires (SMA) does not support the proposal as written, the SMA has submitted written comments in opposition to this item. Mr. John Barton (NIST) informed the Committee that a commitment made by the submitter to provide an opportunity to members of the TG to witness data collection that will provide evidence that their device is capable of meeting the HB 44 Scales Code Class IIIL tolerances has not been met. As a member of the WIM TG, it is necessary to have evidence through the collection of test data showing that the submitter's device will meet the claimed performance and that the efforts of the TG are justified and worth continuing.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Tim Chesser (Arkansas, WIM Task Group) who stated that the WIM Task Group is awaiting direction from the National S&T Committee on this item. The Committee also heard comments from Russ Vires (SMA) who stated that he opposes the item as written. The Committee also heard comments from Eric Golden (Cardinal Scales) who asked if additional testing had been completed. Alan Walker (Florida, WIM Task Group) stated that additional testing had not yet been completed, and that they were currently waiting on direction from the chair of the National S&T Committee.

**NEWMA:** - At the NEWMA 2019 Spring Annual Meeting, Mr. Russ Vires (representing the SMA) commented that the SMA opposes this item as written. The SMA believes there is a lack of data from the submitter on the actual performance capabilities of these systems and developments as discussed within the Task Group. Mr. Russ Vires (on behalf of Mettler Toledo), supports the concept but needs more information and recommends Task Group continues the effort to move forward and develop the item further. The NEWMA recommends that development continues as an Assigned item on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee agrees with the body that this item has merit and should remain Assigned. During open hearing, the Committee heard comments from Mr. Dick Suiter (Richard Suiter Consulting) as a WIM Task Group member. He indicated that TG is waiting for more direction from S&T committee. The major concerns are that test data given by submitter was not witnessed by a weights and measures official.

**CWMA:** - 2019 Spring Annual Meeting. Russ Vires, SMA, opposes this item as written because there is insufficient data. There has been no response to suggested test procedures, nor further development by the WIM task group in

over one year. However, Mettler Toledo supports continuation of this item. There is still opposition to this item, and if there is no data presented, the Committee recommends this item be withdrawn after the Annual NCWM. Diane Lee, NIST OWM, stated there are concerns in the differences in opinions of the task group about test procedures.

2019 Interim Meeting. A member of the WIM Task Group indicated that the group is waiting on data from the submitter. We recommend this item remain assigned to the WIM Task Group.

**SMA:** - 2019 Fall Meeting. The SMA recommends withdrawal of the item from the NCWM agenda.
Rationale: For over four years, there has been a lack of substantiated evidence that the submitter's claims of their device performance capabilities can be validated. In addition, no suitable test procedures for a weigh-in-motion vehicle scale have been established.

## SCL-19.2 I T.N.3.6. Coupled-In-Motion Railroad Weighing Systems., T.N.4.6. Time Dependence (Creep) for Load Cells during Type Evaluation., UR.5. Coupled-in-Motion Railroad Weighing Systems. and Appendix D – Definitions: point-based railroad weighing systems.

**NOTE: This item replaces the 2018 Items, Block 2 items: SCL-1 & SCL-2, and 2017 individual items 3200-4 and 3200-8 and 2019 SCL-7**

| Organization (*) not submitted | SCL -19.2 – T.N.3.6., T.N.4.6., UR.5, Appendix D) - Initial Status – I (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | ✔ | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | ✔ | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | ✔ | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM: -** OWM has noted that the Purpose for the Item Under Consideration should be amended to reflect the submitter's changes to the proposal and to include only those elements of the original proposal that have been retained. OWM reiterates comments included in the 2019 NCWM Final Report. Additionally, OWM has concerns that apply to the amended proposal as follows.

Statements made by the submitter have implied the point-based railroad weighing systems are not intended to be used for static weighing. This would require an alternative device to be acquired or made available to use as a reference scale for testing these in-motion systems. The submitter has amended the original proposal to include a new part (b) under the current UR.5. which states it is the responsibility of the user to provide a reference scale when necessary. Also, the proposed new UR.5.(b) states the weights and measures official is responsible for making the determination whether the reference scale identified is suitable for this purpose.

OWM does not believe this statement is relevant noting that these responsibilities for owner/operators and weights and measures officials have always been in place. According to HB 44 General Code requirement, G-UR.4.4., additional equipment necessary to facilitate a testing procedure will be supplied by the owner/operator as required by the weights and measures official. It is also the regulatory official's duty to declare a reference scale as suitable and that official will need to ensure that the reference scale is appropriate for use *prior* to the point-based system being certified for use.

Additionally, the need for the proposed new subparagraph (b) is questionable since the criteria for reference cars used for in-motion testing are addressed generally in HB 44 Scales Code, paragraph N.3.2. and more specifically in Section 1.9.1. in the Association of American Railroads (AAR) Scales Handbook.

OWM believes that allowing "point-based" systems to be used for commercial transactions only involving the weighing of unit trains will place additional enforcement responsibilities on regulatory officials to ensure that single cars are not weighed on these systems and that these systems are not used in a static mode when they have not been officially approved to operate in that manner.

OWM is aware that following the 2019 NCWM Annual Meeting, the submitter requested in writing that an amendment for the proposed new UR.5.(b) be accepted which included the insertion of the term "point-based railroad weighing systems" within that requirement. OWM believes this request to modify the original language in UR.5.(b) is done simply to justify the addition of a proposed definition in HB 44 Appendix D. Definitions found in HB 44 Appendix D apply to terms used in HB 44 that have specific meaning and are used in a limited context relating to weights and measures and only those terms will be defined in Appendix D. OWM believes the use of any specific term in HB 44 should be done only on a technically-based need for the use of that particular term. Also, if it is determined there is no essential purpose to include the addition of UR.5.(b) (as OWM has indicated), there is no justification for a new definition for point-based railroad weighing systems.

Additional comments from OWM can be found in the 2019 NCWM Final Report.

**WWMA: -** 2019 Annual Meeting. Prior to the 2019 Annual WWMA Meeting, the submitter provided a written recommendation to amend the proposed new subparagraph, UR.5.b. by adding the terminology of "point-based railroad weighing system" to that paragraph and to also include the definition in HB 44 Appendix D for "point-based railroad weighing system." The Committee agreed this proposal as amended by the submitter has merit and to also recommend a Voting status for the item.

The Committee also recommends that this proposal's purpose be modified to only include the changes being suggested to add new subparagraph UR.5.b. and the definition for "point-based railroad weighing systems" in HB 44 Appendix D.

The Committee heard comments from Mr. Russ Vires (SMA) stating opposition to this item pointing out the initial proposal's increase of tolerances for this type of device. Mr. Eric Golden (Cardinal Detecto) stating that this proposal has been in the agenda for quite some time and that the submitter has amended the proposal by removing several of the elements that were included in the initial proposal. Cardinal is opposed even though that the proposal contains less changes than originally presented. Mr. Golden also requested that clarification be made of the phrase "reference scale in close proximity."

Mr. John Barton (NIST) stated that the proposal has been pared down and that the user's requirement included in the current version of the proposal adds nothing since the regulatory official already possesses the authority to declare a reference scale as appropriate. Also, if the users requirement is omitted, then the definition for "point-based railroad weighing systems" is not needed.

Mr. Steve Harrington (OR) commented that considerable angst has been removed from this proposal given that many of the original changes in the proposal have been deleted.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (SMA) who opposes the item because he believes the current standards are fine. The Committee also heard comments from Dick Suiter (Richard Suiter Consulting representing Meridian Engineering) who stated that Meridian Engineering withdrew this item in July and has since removed the Creep Test and Tolerance changes from the item. He also stated that he believes the item should be made into a Voting Item with the term "Point Based" added to UR.5 B, and also the following definition of Point Based to HB 44: **UR.5. (b) <u>For coupled-in-motion Point-Based weighing systems used only for dynamic weighing, the user shall provide an alternate certified scale to be used as a reference scale. The weights and measures authority having jurisdiction over the weighing system shall determine if the reference scale provided is suitable in terms of size, capacity, minimum division, performance requirements, and the proximity to the weighing system under evaluation. The reference weight cars weighed on the reference scale may then be used for calibration and annual inspection by the jurisdiction with statutory authority for the system.</u>** (Added 1990) (Amended 1992 **<u>and 20XX</u>**)

The Committee also heard comments from Tim Chesser (Arkansas) who stated that he supports moving this forward as a Voting Item. Eric Golden (Cardinal Scales) pointed out that the post-July changes that Dick Suiter laid out were still included in our copy of the item on S&T p.20 Lines 4 and 5 and should have been removed. After consideration of this item the Committee recommends this item be moved forward as a Voting Item with the language corrected as described.

**NEWMA:** - 2019 Spring Annual Meeting. Mr. Russ Vires (representing the SMA) commented that the SMA opposes this item. Mr. Russ Vires (on behalf of Mettler Toledo) stated opposition to the item as written due to same concerns as he expressed for the SMA. Mr. Dick Suiter (Richard Suiter Consulting, Representing the Submitter) submitted written comments by email and requests that the proposed changes to T.N.4.6. be withdrawn and the remaining items be separated for individual votes. Mr. Ed Luthy (Schenck Process LLC) commented that accuracy should be the number one goal and that devices entering the marketplace need to meet current tolerances. Mr. Eric Golden (Cardinal Scale) echoed previous comments by the SMA and Mr. Ed Luthy and does not believe tolerances should be modified for new devices. Mr. Golden stated that devices are meeting tolerances currently and do not need tolerances to be expanded. He also stated that withdrawing T.N.4.6. does not resolve all of his concerns regarding the item. NEWMA does not believe the item has merit and recommends withdrawal from the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee agrees with the body and finds merit in this item, sees it as fully developed and recommends it be assigned Voting status. Dick Suiter (Richard Suiter Consulting) commented on behalf of submitter, Meridian Engineers, and provided a written statement that is included in the Appendix.

**CWMA:** - 2019 Spring Annual Meeting. Mr. Russ Vires (SMA) expressed opposition to this item and recommends it be withdrawn because there are existing devices that comply with the current standards and meet with existing tolerances. Several people (NIST OWM, state and industry officials) spoke in opposition to expanding the tolerances. Mr. Dick Suiter, representing Meridian, requested the item move forward as a voting item without T.N.4.6. included and requested the other proposed changes be separated for the NCWM's Annual Meeting agenda. In addition, Mr. Suiter read a letter in support of this item from Mr. Steve Lind of Covia Holdings Corporation (see NCWM website for the letter). Mr. Ed Luthy (Schenck Process LLC.) stated his company has a WIM scale that can meet HB44 requirements, including the current tolerances. The CWMA recommends this item be withdrawn based on comments received in opposition to this proposal.

2019 Interim Meeting. Dick Suiter, Richard Suiter Consulting, provided written comments suggesting the above amendments to the item, including updating the title and purpose to reflect the removal of items from the proposal and adding the term "Point-based railroad" to UR.5. (b). We recommend the item move forward as a voting item with these amendments.

**SMA:** - 2019 Fall Meeting. The SMA opposes this item.
Rationale: The requirements for a reference scale should be specific, and not decided by "…the jurisdiction with statutory authority…". Requirements for traceability and accuracy are specified in Handbook 44 Appendix A "Fundamental Considerations", and should be followed in situations such as this.

The SMA also recommends the following corrections/cleanup be made to the proposal:

**SCL-19.2 I ~~T.N.3.6. Coupled-In-Motion Railroad Weighing Systems., T.N.4.6. Time Dependence (Creep) for Load Cells during Type Evaluation.,~~ UR.5. Coupled-in-Motion Railroad Weighing Systems. and Appendix D – Definitions: point-based railroad weighing systems.**

**~~a) Increase the tolerance for dynamic weighments of unit trains,~~**

**~~b) Provide an exception from "creep" tolerances for point-based in-motion railroad weighing systems,~~**

**~~c)~~ a) Require the user of coupled-in-motion railroad weighing systems to provide a static scale in close proximity for testing purposes, and**

**~~d)~~ b) Add a definition for Point-Based Railroad Weighing Systems to support those proposals.**

## SCL-20.9 S.1.1.3. Zero Indication, Load Receiving Elements Separate from Weighing Elements. and Appendix D – Definitions: no load reference value

| Organization (*) not submitted | SCL -20.9 – S.1.1.3 Zero Indication, Load Rec Ele Sep from Weigh Ele, App D Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | ✓ | | | | |
| WWMA | No Recommendation | | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | | ✓ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | No Recommendation | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | ✓ | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** The purpose stated for this item and the title of the proposed new requirement S.1.1.3. implies that this requirement applies to all weighing systems where the "load-receiving element" is separate from the "weighing-element." When interpreted in a literal sense, this statement is confusing considering the weighing-element of a scale is understood to be the supporting and load bearing elements upon which the load-receiving element rests. OWM is unaware of any type of weighing device in service designed where the load-receiving element is separate from the weighing elements when the device is in use. The general term "weighing elements" would include a lever system, load cells, and structural supporting elements to which the levers or load cells are attached as well as the load-receiving element. The load-receiving element being that portion of the weighing elements to which the load is applied during a weighing operation (commonly referred to as the platform). OWM questions if the submitter's intent was to instead use descriptive language such as: "load-receiving elements" separate from the "indicating-element."

OWM recognizes that the indicated location in the Scales Code for the proposed new requirements indicates that they would be applicable to all scales however, it is not permitted for most types of scales to start a weighing sequence unless the indicating-element displays a zero indication. OWM questions whether the submitter's intent was to limit the proposed new requirements to a specific type of weighing system that is not stated in this proposal. OWM also notes that the proposed new paragraphs S.1.1.3.1. and S.1.1.3.2. address weighing and recording sequences respectively. We believe that unless the intent is to have these new requirements apply to specific types of weighing systems, scales used in general applications are used to make weighments in no particular sequence. Any weighing sequence observed in general-use scales is performed according to the particular application and is only governed by when the load is applied during the weighing operation.

If S.1.1.3.1. "Weighing Sequence" is intended to apply to hopper-type weighing systems, the requirement states the no-load reference value is determined only at the beginning of the weighing cycle. OWM does not believe the use of the terms "to receive" or "to deliver" clearly or accurately represent the intent of this proposed new requirement. If the indicated weight value of the product is that which is determined ***when the load is discharged from the hopper***, it is the gross (when the hopper is loaded) weight and the no-load reference value following the discharge of the product from the hopper that is used to determine the net weight for that particular weighing cycle.

If S.1.1.3.2. "Recording Sequence" is to apply to weighing systems in general, many scales designed for general use will not comply with this requirement, nor should they be required to comply. If this requirement is intended for specific types of weighing systems, it should be clearly stated in the proposed requirements.

OWM recommends that this proposal be withdrawn.

**WWMA:** - 2019 Annual Meeting. The Committee recognizes this as a new proposal and that there were no comments heard on the item during the open hearings. Due to the lack of comments regarding this proposal, the Committee does not offer any recommendation for its status.

**SWMA: -** 2019 Annual Meeting. No comments were made to the Committee on this item during the Open Hearings. The Committee has decided to make No Recommendation on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body take no position on this item as no comments were heard during open hearing.

**CWMA:** - 2019 Interim Meeting. Loren Minnich, KS, the submitter of the item requested the item be assigned a developing status to receive input on the item. Dick Suiter, Richard Suiter Consulting, suggested further clarification regarding what is a load receiving element vs. weighing element. Jason Smith, SD, agreed that there is clarification needed. We recommend the item move forward as developing.

**SMA:** - 2019 Fall Meeting. The SMA opposes this item.
Rationale: The intent of the proposal is not understood well enough to evaluate properly and provide an appropriate recommendation.

## SCL-20.10 S.1.2.2.2. Class I and II Scales Used in Direct Sale and S.1.2.2.3. Deviation of a "d" Resolution.

| Organization (*) not submitted | SCL -20.10 – S.1.2.2.2 Class 1 and II Scales use in Direct Sales & S.1.2.2.3 Dev of a "d " Resolution - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA | | | ✔ | | | | |
| SWMA | | | ✔ | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | ✔ | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** OWM recognizes that items SCL-20.10 and SCL20.11 are closely related and therefore comments on both items are included below. Items SCL-20.10 and SCL-20.11 call into question whether or not more careful thought might have gone into the development of the existing paragraph S.1.2.2.2. and/or the enforcement dates provided prior to its adoption in 2017. OWM recognizes that many in the weights and measures community have the preference that "e" and "d" be equal value on all Class I and II scales used in a direct sale application. OWM however, questions if this might be too stringent an approach given recent information learned about the costs associated with replacing those scales in which "e" and "d" are different values, the significant number of these scales that might already exist in the commercial marketplace (being used for direct sale), and the benefit gained by doing so. We believe more information needs to be known about these scales and how they are being used, especially by those in the jewelry industry, before requiring they be replaced. States may wish to consider postponing implementation of the existing paragraph (S.1.2.2.2.) until more information becomes available and/or an outcome for these new proposals is reached.

We have chosen not to provide any technical guidance on NY's proposal to eliminate paragraph S.1.2.2.2. because information is still forthcoming. As a general rule, we are not in favor of providing exemptions for equipment having to comply with HB 44 requirements (as Mettler Toledo proposes in Item SCL-20.11) but acknowledge there are instances where this had been done in the past. Paragraph S.1.2.2.3. addresses an unrelated concern and should not be eliminated as proposed in SCL-20.10. Deactivation of a "d" resolution on a Class I or Class II with different values of "d" and "e" may result in the scale not rounding properly (i.e., in accordance with G-S.5.2.2.(c)).

OWM believes that a resolution is necessary to whether paragraph S.1.2.2.2. should remain intact, be eliminated from the Handbook entirely, amended in some fashion to possibly provide exemptions, or possibly extend out the date for it to become retroactive. We are reserving any comments to provide any technical guidance on which of these options

is favored because we believe more information about these scales and the way they are being used is needed to be able to make an informed decision. The commercial use of these scales is not so much our concern as is the "direct sale application." What is most concerning about allowing their use in a direct sale application is the confusion created by a scale displaying a differentiated value and, not having a clear understanding whether or not the user will include that value as part of each and every weight determination.

OWM developed the following reasons supporting both the elimination and allowable use of Class I and II scales with different values of "e" and "d" in direct sale applications based on its understanding of how these scales function. It is hoped the community will consider these points when deliberating on how best to address these proposals and the future implementation of paragraph S.1.2.2.2.

**Reasons supporting the elimination of Class I and II scales with different values of "e" and "d" from all direct sale applications:**

- An indicated value on a scale in which "d" is differentiated from "e" is confusing as to whether the entire value should be included as representation of the load being weighed or just the undifferentiated portion.
- It is not yet known how total sale would be computed on a system set up to receive the weight information from one of these scales. OWM is not aware of any systems that compute total sale, but they could conceivably exist. Two U.S. scale manufacturers have indicated to OWM that when a particular scale that they manufacture is equipped with a ticket printer, both "e" and "d" values are recorded with the "d" value differentiated from "e" on the ticket. OWM questions to which value the total sale amount would be based and regardless of which it is, OWM believes this too would be particularly confusing to customers and also presents some price computation concerns.
- When "e" and "d" are different values on Class I and Class II scales, values of "e" do not round to the closest increment. It is not until the full range of the "d" resolution is exceeded by either increasing or decreasing the applied load that the next displayed increment of "e" increases or decreases. Someone aware of this functional characteristic of these scales, such as the user, may be inclined to use this truncating effect to their advantage when buying or selling from the scale in a direct sale application. If a weighing operation is performed where "d" is ignored and only the "e" value is read, there can be as much as nine-tenths the value of "e" error in the weight determination. For this reason, the combined value "e" and "d" must be read when determining the weight of all applied loads. Someone not aware of this functional characteristic may simply ignore the differentiated portion believing it not to be significant.
- It is a scale's verification scale division (e) that establishes accuracy class (HB 44 Scales Code Table 3) and tolerance application (Scales Code Table 6). For this reason, the "e" value is considered a scale's certification interval in all cases. A Class I or Class II scale that provides the user the ability to determine weight values out to a particular decimal place by reading both "e" and "d" values together costs far less than a scale that provides the user this same ability when "e" alone is the only resolution. A scale's ability to display out to the same number of decimal places as other available scales, provides scales with different values of "e" and "d" a competitive advantage over those that display only a single value "e."
- When paragraph S.1.2.2.2. was adopted in 2017, a nonretroactive date of January 1, 2020 was provided to allow scale manufacturers time to prepare for the paragraph's implementation and a "to become retroactive" date of January 1, 2023 provided to allow owners of such scales (Class I and II scales with different values of "e" and "d") five years to replace them so the cost could be expensed over time. The paragraph was widely supported when it was adopted in 2017.
- OIML R 76 does not allow the use of a differentiated scale division (d) on scales used for direct sales to the public (Re: OIML R76 clause 4.13.7). Thus, adding paragraph S.1.2.2.2. to HB 44 in 2018 improved harmonization between the two documentary standards (an additional added benefit). We think the words "to the public" in the OIML paragraph have significant meaning and could likely make possible the use of a

differentiated scale division in some direct sale applications (e.g., wholesale transactions involving the use of a scale between two business entities, etc.) in countries that have adopted this standard.

**Reasons supporting the use of Class I and II scales with different values of "e" and "d" for direct sale application:**

- It is unknown how many scales might be affected by this paragraph and will have to be replaced by 2023. The State of NY recently reported that in its diamond district alone, there are more than 1000 high precision scales, many of which will need to be replaced by 2023 to be compliant with the retroactive enforcement date provided. Boston, Miami, Chicago, and Las Vegas are cities thought to contain a high number of these scales because of the jewelry exchanges located within or in close proximity to those cities.
- Given their long-standing acceptance for use in commercial applications by the jewelry industry, why should Weights and Measures require Class I and II scales with different values of "e" and "d" be replaced? Many of these scales have been issued an NTEP CC and have been in use for quite some time.
- The scales needing to be purchased to replace those that will become noncompliant in 2023 will be much more expensive because they will have to be of greater accuracy in order to be able to provide the user the same number of places in the displayed indication as the scale being replaced. In some cases two scales may need to be purchased to replace the noncompliant scale because of the greater accuracy of the replacement scales.
- If a scale's maximum allowable increment value for a particular application is based on "e," what harm is there in using a scale in which "e" and "d" are different values and basing transactions on their combined value?

The "d" resolution on a Class I or II scale in which "e" and "d" are different values makes possible the reading of weight indications between increments of "e," whereas, the scale in which "e" is equal to "d" can only round to the closest value of "e." Thus, it can be concluded, given two scales with the same value of "e," one of which also provides a smaller differentiated "d" resolution, and the other not, the scale with the differentiated value "d" is capable of providing more accurate weight determinations.

**WWMA:** - 2019 Annual Meeting. The Committee agrees that this proposal should be withdrawn. The Committee acknowledges paragraph S.1.2.2.2. has merit as it appears currently in HB 44 with the exception of the non-retroactive status, becoming retroactive at a later date. The Committee will address the issue of the non-retroactive and retroactive status in item SCL-20.11.
During the open hearing session, comments were taken as a group to include items SCL-20.2, SCL-20.10, and SCL-20.11.
Mr. Steve Harrington (OR) commented that still believes there is merit in the proposed changes but suggested removing the retroactive date to allow devices now in service to remain in service. Mr. Russ Vires (SMA) provided some history of the use of both "d" and "e" for scales and that field inspectors did not have the appropriate test weight to properly test these scales to the finest resolution. While supported initially by the SMA, it was not realized that this proposal would have unintended consequences related to the jewelry industry where "d" is commonly used in weight determinations. The SMA recommends that the retroactive date be eliminated to allow manufactures additional time to change the designs on their equipment and so existing scales can continue to be used. Mr. Vires also suggested that this requirement could be formatted as a users requirement.
Mr. John Barton (NIST) stated that the exclusion of jewlers scales in this requirement could provide reason to exclude other applications and this may be a "slippery slope."
Mr. Harrington stated that he could also support the proposal formatted as a user requirement.

**SWMA:** - 2019 Annual Meeting. No comments were made to the Committee on this item during the Open Hearings. After consideration of this item the Committee recommends this item be Withdrawn. The Committee prefers SCL-20.11

**NEWMA:** - 2019 Interim Meeting. The Committee and the body find merit in this item and finds it fully developed and agrees it should be assigned a voting status. Submitter. Mr. Jim Willis (NY) presented a short power point explaining the unintended consequences of 2.20.S.1.2.2.2 in 2019 HB44 for certain industries. He also stated that NY will not enforce the current language in HB44 as it puts undue burden on those that have used NTEP certified scales for decades and now will be forced to buy new devices. Mr. John McGuire (NJ) asked what the difference is between SCL-20.10 and SCL-20.11? Mr. Steve Timar (NY) says the exception in 20.11 has a carve out just for jewelry scales, but submitter wants language to return to 2017 HB44. Mr. John McGuire (NJ) supports submitters position.

**CWMA:** - 2019 Interim Meeting. Loren Minnich, KS, commented that the item should move forward as a voting item with the above amendment. We recommend the item move forward as a voting item with the above amendment.

**SMA: -** 2019 Fall Meeting. The SMA supports this item and recommends it be assigned a status of Voting.

## SCL-20.11 S.1.2.2.2. Class I and II Scales Used in Direct Sales.

| Organization (*) not submitted | SCL -20.11 – S.1.2.2.2 Class 1 and II Scales use in Direct Sales Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA | ✔ (with chngs.) | | | | | | |
| SWMA | ✔ (with chngs.) | | | | | | |
| CWMA Interim (Fall) | | | ✔ | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | ✔ | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | ✔ (with changes) |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** See comments under previous Item SCL-20.10.

**WWMA:** - 2019 Annual Meeting. The Committee recommends this item be given a voting status as amended in the proposal including the exception for jeweler's scales. The Committee recommends to further add an exception for grain test scales used in USDA applications as shown.

***S.1.2.2.2. Class I and II Scales Used in Direct Sales.*** – ***Except for jewelers' scales and grain test scales used in USDA applications, ~~W~~w****hen accuracy Class I and II scales are used in direct sale applications, the value of the displayed division "d" shall be equal to the value of the verification scale interval "e.*

*[Nonretroactive as of January 1, 202~~0~~3; ~~to become retroactive as of January 1, 2023~~]*

Comments heard during the open hearing session included statements from Mr. Steve Harrington (OR) commenting that he still believes there is merit in the proposed changes but suggested removing the retroactive date to allow devices now in service to remain in service. Mr. Russ Vires (SMA) provided some history of the use of both "d" and "e" for scales and that field inspectors did not have the appropriate test weight to properly test these scales to the finest resolution. While supported initially by the SMA, it was not realized that this proposal would have unintended consequences related to the jewelry industry where "d" is commonly used in weight determinations. The SMA recommends that the retroactive date be eliminated to allow manufactures additional time to change the designs on their equipment and so existing scales can continue to be used. Mr. Vires also suggested that this requirement could be formatted as a users requirement.
Mr. John Barton (NIST) stated that the exclusion of jewlers scales in this requirement could provide reason to exclude other applications and this may be a "slippery slope."
Mr. Harrington stated that he could also support the proposal formatted as a user requirement.

**SWMA:** - 2019 Annual Meeting. During the open hearings the Committee heard comments from Russ Vires (Mettler Toledo, Submitter) who suggested the following change.

> S.1.2.2.2. Class I and II Scales Used in Direct Sales. – **Except for jewelers' scales <u>and grain test scales used in USDA applications,</u>** ~~**W**~~**<u>w</u>**hen accuracy Class I and II scales are used in direct sale applications, the value of the displayed division "d" shall be equal to the value of the verification scale interval "e".
>
> [Nonretroactive as of January 1, 202~~**0**~~**<u>3</u>**~~**; to become retroactive as of January 1, 2023]**~~

After consideration of this item, the Committee recommends moving this item forward as a Voting Item with the proposed changes.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item is redundant and would cause a special carve out for devices used in certain industries. The Committee believes this item should be withdrawn and urges the submitter to work with the submitter of SCL-20.10. Mr. Ethan Bogren (Westchester County, NY), Mr. John McGuire (NJ), Mr. Jim Willis (NY) and Mr. Marc Paquette (VT) all voiced concerns about the redundancy of the item. Mr. Dick Suiter (Richard Suiter Consulting) commented that the Southern Weights and Measures Association recommended also including grain test scales in this proposal.

**CWMA:** - 2019 Interim Meeting. Loren Minnich, KS, commented that it is inappropriate to make this exemption and this item should be withdrawn. We recommend the item be withdrawn.

**SMA: -** 2019 Fall Meeting. The SMA supports this item if SCL-20.10 is withdrawn.
Rationale: This item resolves the unintended consequences associated with the previously added paragraph "S.1.2.2.2. Class I and II Scales Used in Direct Sales" for the jewelry and grain moisture analyzer applications and the associated Retroactive and Nonretroactive dates.

## SCL-20.12 Multiple Sections to Add Vehicle Weigh-in-Motion to the Code and Appendix D – Definitions; vehicle scale and weigh-in-motion vehicle scale.

| Organization (*) not submitted | SCL -20.12 – Multi Secs to Add WIM to the Code and Appendix D Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | ✔ | | | |
| WWMA | | ✔ | | | | | |
| SWMA | | | | ✔ | | | |
| CWMA Interim (Fall) | | | | ✔ | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | ✔ | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** OWM appreciates the submitter's efforts to draft changes to the HB 44 Scales Code that will have it apply to WIM vehicle scales. Noting the extensive amount of changes being proposed, we do have some questions however, whether these changes are being made to the appropriate HB 44 code. We note that the tentative "Weigh-In-Motion Systems Used for Vehicle Enforcement Screening" Code might also serve as an appropriate location for requirements pertaining to WIM vehicle scales used in commercial transactions. Alternatively, it may be appropriate to create a new HB 44 Code to encompass all types of in-motion weighing devices.

Based upon our review of proposal SCL-20.12, OWM believes this proposal should be further developed and recommends the following concerns be addressed:

- The location shown in the Scales Code for proposed new requirement S.1.8.6. "Values to be Recorded, Weigh-In-Motion Vehicle Scales" is inappropriate. The paragraph S.1.8. addresses "computing scales" and

therefore this new requirement may more suitably located in another section (possibly a new S.1.14. or S.1.15.) of the Scales Code. OWM recognizes that another new requirement in this proposal specifically related to WIM Vehicle Scales has been drafted, located, and numbered as a new S.1.14. "Weigh-in-Motion Vehicle Scales Operational Limitations."

- The proposed new requirement S.1.14.1. "Identification of a Fault" identifies conditions that may result in inaccurate weighments however, there is no associated requirement included in this proposal that identifies what should occur when erroneous weight values generated by the WIM vehicle scales are detected. OWM would recommend that any erroneous weight value resulting from "faults" not be displayed or recorded or alternatively be displayed and recorded as a non-weight error message.

- OWM does not believe that there are any WIM vehicle scale systems that would be approved for commercial use and which would have been manufactured between 1/1/1981 and 1/1/2007. If this is true, there is no need for any amendment (as proposed) for S.2.1.3.1.

- OWM notes that proposed changes for paragraph S.2.5.1. Digital Indicating Elements provide an exception for WIM vehicle scales however, in subpart (a) of that requirement the proposal adds WIM vehicle scale to the requirement addressing the motion-detect feature. Additionally, OWM does not believe there would be any WIM vehicle scales manufactured prior to 1/1/1981 which would also be approved for commercial use. If this belief is correct, the proposed amendment to S.2.5.1.(a) would be inappropriate. If the submitter's objective is to allow WIM vehicle scales to only record indications when those indications are stable within three scale divisions, OWM recommends that WIM vehicle scales be included under S.2.5.1.(b) or addressed through the addition of a new subpart (c) to S.2.5.1. that would specifically address these types of systems.

While this proposal does include some detail regarding recommended test procedures, OWM has noted that there is no detailed information included regarding the required accuracy for the weight values assigned to any reference vehicles (or test loads) that are referred to in the proposed new requirement N.7.2.1. "Reference Vehicles." Likewise, there is no mention in the proposal for any required accuracy statement for a scale used to establish the weight value of these reference vehicles. The required minimum level of accuracy for dynamic test loads will be a critical parameter to be stated when an official examination of the WIM scale is performed. OWM would anticipate this required level of accuracy be in compliance with the criteria found in HB 44 Appendix A – Fundamental Considerations, Section 3.2. "Tolerance for Standards."

OWM recognizes that the submitter of the "competing" proposal SCL-16.1 (also found in the S&T's Agenda) is charged with providing first-hand evidence that its WIM systems are capable of meeting the HB 44 Scales Code Class III L tolerances as claimed, and therefore, believes the submitter of this proposal should also provide similar evidence. Additionally, OWM believes that an assigned status is appropriate for this proposal.

**WWMA: -** 2019 Annual Meeting. The Committee agrees the item has merit and that the item be given a Developing status. The Committee notes that the submitter has stated there is an opportunity for having members of the NCWM, NIST, and/or regulatory officials to witness the operation of the systems referenced in this proposal thus providing evidence the systems will meet current Class IIIL tolerances.
During the open hearing session, the Committee heard comments from Mr. Russ Vires (Mettler Toledo) as the submitter of the item that input is requested from the regional associations, regulators, and other sources on the changes being proposed. Mr. Vires stated that he believes the item is fully developed and requested that it be assigned as a Voting item. Mr. John Barton (NIST) stated that OWM has not had a sufficient opportunity to review this item fully but that it is encouraging to note that the submitter is offering others the opportunity to observe the submitter's device being tested to provide evidence that it will meet Class IIIL tolerances. Mr. Eric Golden (Cardinal Detecto) stated that as a member he has experienced the frustration in the past 18 months with the existing WIM TG addressing item SCL-16.1. Mr. Golden stated that Cardinal could support this proposal as a Developing item with some reservations.

**SWMA: -** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Tim Chesser (Arkansas) who recommended this item be given an Assigned status. Russ Vires (Mettler Toledo) stated that he did not support an Assigned status and is willing to demonstrate the capabilities of the device by the 2020 NCWM Interim Meeting. He also stated that he feels the item is well developed but would rather the item be recommended as

Developing back to Mettler Toledo, the submitter. Eric Golden (Cardinal Scales) asked how multi-platform scales would be considered moving forward, and that he supports single draft weighing. Dick Suiter (WIM Task Group) stated that this item conflicts with the task groups' proposal if single draft weighing became the only allowable method. He also stated that the task group wants to remove the single draft requirement for WIM Vehicle Scales. After consideration of this item the Committee recommends this item be Assigned to the WIM Task Group.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item has merit and should be given an assigned status. During open hearings, Mr. Dick Suiter (Richard Suiter Consulting) commented that as a WIM member, recommend the item be assigned. He explained that this proposal is different than SCL-16.1 because it proposes using a single draft with a full-length truck scale. Mr. John McGuire (NJ) and Mr. Jim Willis (NY) agree with this position.

**CWMA:** - 2019 Interim Meeting. Eric Golden, Cardinal Scale, commented that they support the single draft requirement for WIM vehicle scales and this item should be separate from SCL-19.2. Dick Suiter, Richard Suiter Consulting, commented that other regions recommended assigning the item and that the WIM TG can develop both items. Charlie Stutesman, KS commented that SCL-19.2. has been held back by disagreement over test procedures and this item shouldn't be assigned to the WIM TG. Jason Smith, SD, commented that the WIM TG was developing code for all devices and could consider both. We recommend the item be assigned to the WIM TG so that group can determine how these items move forward.

**SMA:** - 2019 Fall Meeting. The SMA recommends this be a Developing item.
Rationale: The SMA recognizes that the item has merit and looks forward to the planned demonstration of the equipment as well as other comments related to the proposed scale code changes.

## SCL-20.13 N.1.5. Discrimination Test

| Organization (*) not submitted | SCL -20.13 – N.1.5. Discrimination Test – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | **V** | **D** | **W** | **A** | **I** | **Opposed** | **Support** |
| OWM | ✔ | | | | | | |
| *WWMA | | | | | | | |
| *SWMA | | | | | | | |
| CWMA Interim (Fall) | | | ✔ | | | | |
| CWMA Annual (Spring) | | | | | | | |
| *NEWMA Interim (Fall) | | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | ✔ (with changes) |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** OWM recognizes that conducting a discrimination test on a Class I or II scale where e = d and that value is less than 5 mg, it would be necessary to use test weights of exceedingly small denominations (e.g., 0.1 x e) and that most weights and measures agencies would not typically issue their field staff such test standards. It is also unlikely that conducting a field test on such scales could include a discrimination test in an environment where anything other than severely controlled conditions exists.

OWM agrees with the NTEP Weighing Sector and believes this proposal has merit.

***Note:*** *This item was not submitted to the WWMA, SWMA, or NEWMA.*

**CWMA:** - 2019 Interim Meeting. Several regulators opposed creating an exemption for these scales and supported withdrawing the item. We recommend the item be withdrawn.

**SMA:** - 2019 Fall Meeting. The SMA supports the concept of this item and suggests the following changes:

***N.1.5. Discrimination Test. – Except for digital electronic scales ~~designated Accuracy Class I or II~~ in which the value of e ~~= d and~~ is less than 5 mg,***

# ABW – AUTOMATIC BULK WEIGHING SYSTEMS

## ABW-16.1 A. Application, S Specifications, N. Notes, UR. User Requirements and Appendix D – Definitions: automatic bulk weighing system.

**Originally ABW-3**

| Organization (*) not submitted | ABW -16-1 – A., S. N. UR and Appendix D - Initial Status – D (Several Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | ✔ | | | | |
| WWMA | | | ✔ | | | | |
| SWMA | No Recommendations | | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | ✔ | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM: -** OWM is not aware of any further development occurring to this proposal since the 2019 NCWM Annual Meeting and therefore we reiterate our comments from the previous analysis. We also recognize that there may be some benefit to modernize the HB 44 ABWS Code to address the newer types of technologies used in the ABWS systems however, we see no benefit to expand the ABWS Code to include systems that do not conform with the very unique operational features and processes associated with ABWS.

This proposal eliminates the carefully developed language in the application requirement (A.1.) designed to limit the application of the ABWS Code to an exclusive category of weighing devices. This language (proposed to be eliminated) very clearly distinguishes ABWS from other types of automated weighing systems. The changes proposed would therefore expand the scope of the ABWS Code to include other weighing systems that would be more appropriately covered by other codes (or perhaps a new code).

The proposed change to the Appendix D definition for ABWS strips from that existing description the fundamental and basic principles that clearly identify ABWS and distinguish them from other types of weighing systems. In addition, other parts of this proposal that OWM believes to need further development are listed below.

- Use of the terms: “loaded weight value” (paragraph S.1.8.); “weighing process” (paragraph S.10.); and “weighment” (paragraphs S.1.8., S.1.9., and S.1.10) in this proposal are ambiguous terms that need to be more adequately defined.
- The proposed new paragraph S.1.7. should be amended to address the following three issues.

    1. The issue of indication and recording of no-load reference values is already addressed by the existing paragraph S.1.1. “Zero Indication.”

    2. The function of motion detection at no load doesn’t need to be addressed because if a system were to record values when product was still flowing in or out of the load-receiving element, it would result in inaccurate net weight indications. Motion detection is verified as part of an official inspection and would detect such a violation.

3. An automatic shutdown feature when the no-load reference value is outside user design parameters. OWM questions if it should also be necessary for an automatic shutdown feature to activate if the "gross-load reference values" were to fall outside of the user designed parameters. If so, the first two sentences in proposed new paragraph S.1.7. could be eliminated and the remaining two sentences amended to include "gross load reference values." The title of this paragraph could then also be changed to "Automatic Shutdown Feature." OWM also notes that requirements for automatic shutdown feature don't address the accuracy of the weight determination once design parameters are exceeded requiring the system to shut down. This requirement only addresses the need for operator intervention to get the system started again.

- We also believe the proposed changes in paragraph S.3.3.(a) and (b) are lacking in clarity and should provide additional detail. It is important to specify in (a) that product flow to the load-receiving element must automatically stop rather than be stopped. Also, the terminology "other equipment" needs better clarification in the first sentence proposed for sub-paragraph (b).

Additional comments from OWM can be found in our analysis for the 2019 NCWM Annual Meeting agenda items.

**WWMA: -** 2019 Annual Meeting. The Committee agreed to recommend this item be withdrawn. The Committee recognizes that there have been no changes to the proposal since the last cycle of hearings. During the open hearing session, the Committee heard comments from Mr. Russ Vires (SMA) have no opinion at this time. Mr. John Barton (NIST) stated that the submitter proposal to modify the ABWS Code by introducing terminology that reflects the newer technology in use today however, he believes that there is too much focus being given to "automation" and not enough focus on the unique and specific characteristics of ABWS devices. Also, that by removing the description of ABWS from the Applications Section of the Code, this proposal will widen the scope to include systems not intended to be covered under the ABWS Code.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (SMA) stating he had no position on this item at this time. The Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Spring Annual Meeting: Mr. Russ Vires (representing the SMA) commented that the SMA takes no position on this item. Mr. John Barton (NIST) commented that ABWS devices are unique and have specific characteristics identified in the Application section of the ABWS Code and that in this proposal, these characteristics have been taken out of the Applications section of the ABWS Code. He believes that these changes may permit the ABWS Code to be applied to other devices/systems not intended to be evaluated under this HB 44 Code. NEWMA recommends that the item remain Developing on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and the body agree with comments made in the Western Weights and Measures Association report that this item should be withdrawn as no changes or additional information has been provided since 2016. No comment was heard during open hearing.

**CWMA:** - 2019 Spring Annual Meeting. Mr. Russ Vires (SMA) took no position on this item. Ms. Diane Lee (NIST OWM) stated the view that changes proposed to paragraph A.1. are seen as expanding the scope of the current HB 44 Automatic Bulk Weighing Systems Code (ABWS) to encompass types of systems not previously considered as ABWS. While OWM agrees with the concept of updating the current code to pave the way for its application to newer automated weighing systems. OWM believes the current proposal as drafted, is not sufficiently developed enough to be considered for adoption. CWMA recommends this item be given an information status because the item has merit, but the submitter (Kansas) has stated they will not develop it any further.

2019 Interim Meeting. Loren Minnich, KS, commented that work is continuing on this item to address concerns that have been raised and would like it to remain developing. We recommend the item remain developing.

**SMA:** - 2019 Fall Meeting. The SMA takes no position on this item.

## WIM – WEIGH-IN-MOTION SYSTEMS USED FOR VEHICLE ENFORCEMENT SCREENING TENTATIVE CODE

## WIM-19.11 Title of Tentative Code, S.1.7.1. Values to be Recorded., S.4.1. Designation of Accuracy., N.1. Test Procedures, T.2. Tolerance Values for Accuracy ~~Class A~~ Classes., UR.1.1. General, Table 1. Typical Class or Type of Device for Weighing Applications.

**Originally WIM-1**

| Organization (*) not submitted | WIM – 19.11 – Title of Ten Code, S.1.7.1, S.4.1., N.1., T.2, UR.1.1., Gen, Tbl 1 (1 Items), Initial Status – D 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | ✔ | | | | |
| WWMA | | | ✔ | | | | |
| SWMA | | | ✔ | | | | |
| CWMA Interim (Fall) | | | ✔ | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | ✔ | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |
| SMA (Industry) | | | ✔ | | | | |

**NIST OWM: -** OWM reiterates our comments from the 2019 NCWM Annual Meeting analysis and notes that the submitter of this proposal has not provided any further comment or update during the 2019 NCWM Interim or Annual Meetings. OWM points out that the changes being recommended in this proposal if adopted would set a precedent where the scope of NIST Handbook 44 (as described in the Introduction – sections A. and F. and in the General Code, paragraph G-A.1.) would be expanded to also apply to devices used in non-commercial applications. We are not aware of any further development that has been done on this item. Therefore, OWM believes that unless the submitter provides an update on any progress made on additional development of this proposal, it should be withdrawn since there is a predominance of opposition to adopting standards intended for devices used in non-commercial applications. OWM also believes that there must be additional detail provided for justification to add these types of requirements in Handbook 44.

**WWMA: -** 2019 Annual Meeting. The Committee notes that the numeric designation of this item is incorrect and recommends the numbering be amended to WIM-19.1. The Committee also recommended this item be withdrawn given that the proposal seeks to include requirements for non-commercial weighing devices and that this approach could possibly increase the scope of NIST HB 44 to an excessive level. Mr. Russ Vires (SMA) stated that the SMA takes no position on this item and looks forward to more input from the submitter. Mr. Eric Golden (Cardinal Scale) stated that he has discussed the item with the submitter. He stated that the submitter seeks to develop a standard to be used for scales used in shipping ports to satisfy requirements established by the Maritime regulation SOLAS (Safety of Life at Sea) and OSHA (Occupational Safety and Health Administration). He does not support the tolerances proposed stating that they are excessive. Mr. Golden also stated that he does support the overall concept and the efforts of the submitter.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comment from Russ Vires (SMA) who stated that he had no position on this item at this time. The Committee also heard comments from Diane Lee (NIST) who stated that this item sets a precedent expanding the scope of Handbook 44 beyond commercial applications. After consideration of this item the Committee recommends this item be Withdrawn, based on it being in conflict with Hand Book 44 Introduction Sections A and F, and General Code Paragraph G.A.1 which stated that the code only applies to commercial devices. The Committee doesn't want to open the door to approval of any other noncommercial devices

**NEWMA:** - During the 2019 Spring Annual Meeting, Mr. Russ Vires (representing the SMA) commented that the SMA has taken no position on this item and looks forward to additional analysis. NEWMA recommends this to be a developing item on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and the body agree that this item be withdrawn. During open hearing, Mr. Dick Suiter (Richard Suiter Consulting) commented that opposition to this item is primarily due to the use of the term "non-commercial" and HB44 deals with commercial device applications.

**CWMA:** - 2019 Spring Annual Meeting: Mr. Russ Vires (representing the SMA) commented that the SMA takes no position. Diane Lee, NIST OWM, pointed out that the changes being recommended in this proposal if adopted would set a precedent where the scope of NIST Handbook 44 (as described in the Introduction – sections A. and F. and in the General Code, paragraph G-A.1.) would expand to also apply to many devices that are used in non-commercial applications. The Committee recommends this item be withdrawn because it is not clear why OSHA needs HB44 to certify these devices.

2019 Interim Meeting. Charlie Stutesman (KS) commented that this item is not necessary, and that each jurisdiction can determine how to properly evaluate devices used in this application to satisfy OSHA requirements. We recommend the item be withdrawn.

**SMA:** - 2019 Fall Meeting. The SMA recommends this item be withdrawn due to the lack of additional development by the submitter.

## "NEW" BLOCK 1 ITEMS (B1) 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

*NOTE: During the 2019 NCWM S&T Committee Meeting, the S&T Committee considered the comments during the opening hearing and recommended that B1, B2, LPG-3 and MFM-5 agenda items be combined with GEN-3 and gave these items an assign status. This block of items ("New" BLOCK 1) now includes previously numbered items: GEN-3; Block 1; Block 2; LPG-3; and MFM-5. The Item Under Consideration for all individual items has been included in the listing that follows.*

### B1: GEN-19.1 A G-T.5. Tolerances on Tests When Transfer Standards are Used., Appendix D – Definitions: <u>standards, field.</u>, ~~transfer standard.~~ and <u>standard, transfer.</u>

| Organization (*) not submitted | Gen 19.1 – General Code Initial Status – A (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | ✔ | | | |
| WWMA | | | | ✔ | | | |
| SWMA | No Recommendations | | | | | | |
| CWMA Interim (Fall) | | | | ✔ | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**
NIST OWM continues to provide updates and comments to Block 1 items to keep the weights and measures community current on the activities occurring to move Block 1 items forward. The following list summarizes those activities:

- NIST OWM recognizes that one of the issues concerning the use of the term "Field Standard" and having the term apply to all standards is that all standards may not be able to meet the requirements for field standards addressed in Section 3.2 of the Fundamental Considerations in NIST HB 44. There is also an issue of who has the authority to accept a standard for use. To address these and other concerns NIST, OWM believes a possible approach to resolving the issues included in Block 1 items:
  1. Add a statement to Section 3.2 in NIST HB44, Fundamental Considerations, to address another option for standard accuracy during testing, elaborate on traceability and how it is achieved and language concerning regulatory responsibility similar to what is included in NIST HB 130.
  2. Find and examine different terminology used in HB 44 for standards used in testing commercial devices and select an appropriate term for these standards.
  3. Make appropriate changes in NIST HB 44, HB130 and other documents as appropriate.
  4. Collect data using NIST Purchased Coriolis meters to demonstrate that master meters are a viable option for use in testing devices
  5. Develop a guidance document with clear processes to describe how standards are validated and values are assigned.
- NCWM appointed a task group to develop B1 items. The chair of the committee is Jason Glass of the SWMA and there are representatives from NEWMA, WWMA, CWMA, GA Sector and NIST OWM
- NIST OWM purchased master meters of various sizes to collect data on the use of master meters. NIST OWM met with State representatives at the interim meeting to discuss plans for testing and also via teleconference in early September 2019.
- Field testing was conducted October 28-November 1, 2019 and States and industry participation included Colorado, Florida, Oregon, Emerson and Tulsa Gas Technology.

NIST OWM agrees with WWMA, CWMA, and NEWMA regional weights and measure associations that this item may remain assigned. In addition, it may be beneficial to the task group to consider the data currently being collected by NIST, prior to considering and developing a position for block 1 items. As such, an informational status until such time that all data is available could be considered.

**WWMA: -** 2019 Annual Meeting. Committee agrees to recommend that the Assigned status is maintained and looks forward to the work in progress by the TG.

During open hearings Mr. Russ Vires (SMA) stated that SMA supports the proposal as it related to the items addressing scale requirements and would also recommend the use of uniform terminology in the proposed changes.
Mr. Kurt Floren (LA County, CA) stated that this issue should be addressed from a metrologist's perspective. Mr. Floren also stated that if there was a challenge to whether mass field standards are tested under all possible environmental conditions there may be no substantial evidence that this procedure is followed.

**SWMA:** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (SMA) who stated that he supports this item as it pertains to SCL 18.1, ABW 18.1, and ABS 18.1. Diane Lee (NIST) provided guidance based on last year's comments. This item is already assigned to a task group. The Committee did not have a recommendation as to the status of this item.

**NEWMA:** - At the NEWMA 2019 Annual Meeting, Mr. Russ Vires (representing the SMA) commented that the SMA opposes GEN 3 as written. He stated the SMA does not believe that the item has been fully developed and that a proposal is put forth for the definition of a field standard that applies to measuring devices but omits other devices such as weighing equipment. Mr. Vires also commented that the SMA does support proposed changes for these items also found in the new Block 1: SCL 4; ABW 1: and AWS 1 and looks forward to further development. Mr. Mike Sikula (NY) commented that it is important to consider that requirements found in HB 44 Appendix A, Section 3.2. "Tolerances for Standards" (less than 1/3 the value of the minimum tolerance applied) cannot always be met but the use of alternative standards may be the only way to get the job done or the only way to do a job safely. Mr. Bob

Murnane (Seraphin) commented that he would like to have clear, simple definitions for "transfer standard" and "field standard." He also thinks it may be best to start fresh and focus on the intent of the item. NEWMA recommends that the development of this item continue as an Assigned item on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and body agree that this item should be assigned. During open hearings, Mr. John McGuire (NJ) asked if this had been assigned yet. Mr. Dick Suiter (Richard Suiter Consulting) indicated that it has been marked as assigned to a TG and the TG is gathering members in order to be working by January

**CWMA:** - At the CWMA 2019 Spring Annual Meeting, Mr. Russ Vires, SMA stated support for Block 1 but also stated that GEN-3 needs development because the definition should include all device types if it is to be added to HB44. Diane Lee, NIST OWM, commented they have purchased Coriolis meters to begin data collection. Dick Suiter, representing Seraphin, wants a balanced work group with old and new ways of testing, to include petroleum marketers, scale manufactures, large prover manufacturers, and device users. Kansas W&M commented HB 105 will need to be developed and to proceed cautiously with data collection.

2019 Interim Meeting. Greg VanderPlaats, MN, commented that the task group has not met. We recommend the item remained assigned.

## BLOCK 1 ITEMS (B1) A TERMINOLOGY FOR TESTING STANDARDS (original B1 items)

- **B1: SCL-18.1 A N.2. Verification (Testing) Standards**
- **B1: ABW-18.1 A N.2. Verification (Testing) Standards**
- **B1: AWS-18.1 A N.1.3. Verification (Testing) Standards, N.3.1. Official Tests, UR.4. Testing Standards**
- **B1: CLM-18.1 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards**
- **B1: CDL-18.1 A N.3.2. Transfer Standard Test, T.3. On Tests Using Transfer Standards**
- **B1: HGM-18.1 A N.4.1. Master Meter (Transfer) Standard Test, T.4. Tolerance Application on Test Using Transfer Standard Test Method**
- **B1: GMM-18.1 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. Tolerances[1]**
- **B1: LVS-18.1 A N.2. Testing Standards**
- **B1: OTH-18.1 A Appendix A: Fundamental Considerations, 3.2. Tolerances for Standards, 3.3. Accuracy of Standards**
- **B1: OTH-18.2 A Appendix D – Definitions: fifth-wheel, official grain samples~~, transfer standard~~ and Standard, Field**

| Organization (*) not submitted | B1 Terminology For Testing Standards - Initial Status -A (10 Items)-B1: SCL-18.1, ABW-18.1, AWS-18.1, CLM-18.1, CDL-18.1, HGM-18.1, GMM-18.1, LVS-18.1, OTH-18.1, OTH-18.2 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | ✔ | | | |
| WWMA | | | | ✔ | | | |
| SWMA | No recommendation | | | | | | |
| CWMA Interim (Fall) | | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | ✔ |
| Seraphin | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST, OWM: See comments under "NEW" Block 1**

**SMA: -** 2019 Fall Meeting. The SMA supports the proposal as it applies to the items SCL-18.1, ABW-18.1, and AWS-18.1 items, and looks forward to further development by the Task Group.
Rationale: It is important to be consistent in our use of terms across multiple sections of Handbook 44.

**BLOCK 1 ITEMS (B1) A DEFINE "FIELD REFERENCE STANDARD"**
**(original block 2 items)**

- **B1: CLM-18.2 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards**
- **B1: CDL-18.2 A N.3.2. Transfer Standard Test and T.3. On Tests Using Transfer Standards**
- **B1: HGM-18.2 A N.4.1. Master Meter (Transfer) Standard Test and T.4. Tolerance Application on Test Using Transfer Standard Test Method**
- **B1: OTH-18.3 A Appendix D – Definitions: field reference standard meter ~~and transfer standard~~**

| Organization (*) not submitted | Originally B2 Define "Field Reference Standard" - Initial Status – A (4 Items) – CLM-18.2, CDL-18.2, HGM-18.2, OTH-18.3 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | ✔ | | | |
| WWMA | | | | ✔ | | | |
| SWMA | No recommendation | | | | | | |
| CWMA Interim (Fall) | | | | ✔ | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| Seraphin | | | | | | | |

**NIST, OWM: See comments under "NEW" Block 1**

## B1: LPG-15.1 A N.3. Test Drafts.

**Originally LPG-3 N.3 Test Drafts**

| Organization (*) not submitted | (Originally LPG - 3 N.3 Test Drafts) LPG-15.1 N.3 Test Drafts - Initial Status – A (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | ✔ | | | |
| WWMA | | | | ✔ | | | |
| SWMA | No recommendation | | | | | | |
| CWMA Interim (Fall) | | | | ✔ | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST, OWM: See comments under "New" Block 1**

## B1: MFM-15.1 A N.3. Test Drafts.

**Originally MFM-5 N.3 Test Drafts**

| Organization (*) not submitted | (Originally MFM-5 N.3 Test Drafts) MFM-15.1 N.3 Test Drafts - Initial Status – A (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | ✔ | | | |

| Organization (*) not submitted | (Originally MFM-5 N.3 Test Drafts) MFM-15.1 N.3 Test Drafts - Initial Status – A (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| WWMA | | | | ✔ | | | |
| SWMA | | | | | | | |
| CWMA Interim (Fall) | | | | ✔ | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | ✔ | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST, OWM: See comments under "New" Block 1**

# LMD – LIQUID MEASURING DEVICES

## LMD-19.1 I UR.4.2. Security for Retail Motor-Fuel Devices.

*Note: This replaces Item GEN-1: G-A1 Commercial and Law-Enforcement Equipment. and G-S.2. Facilitation of Fraud.*

| Organization (*) not submitted | LMD-19.1 – General Code - Initial Status – I (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA Annual (Fall) | ✔ | | | | | | |
| SWMA Annual (Fall) | ✔ | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** This item was originally a proposal to change the general code to address skimmers and is now a proposal to add a user requirement to the Liquid Measuring Device Code to address these or other similar devices.

OWM reiterates some of our comments made in our analysis of this item on the 2018 and 2019 S&T agendas. While we recognize the seriousness of consumers being deceived by criminals able to extract their financial information using credit- and/or debit-card "skimmers," hidden cameras, etc., and then using this information for personal gain, we do not view this as a primary focus of weights and measures authority since the devices (skimmers) don't affect the measurement transaction. It is also not clear if weights and measures jurisdictions would have the authority to take action on these devices. It seems that the installation of illegal card readers attached to a payment terminal — like a gas pump — that grabs data off a credit or debit card's magnetic stripe without the consumer's knowledge is more of a concern for the manufacturers of commercial weighing and measuring equipment and the regulatory agencies that already have the authority to take action on these illegal acts (i.e., the FBI and the FTC). We note that in most instances it is a third-party thief installing these illegal devices to obtain a customer's financial information for benefit and not the owner/operator of a piece of commercial equipment simply trying to manipulate the equipment for a little extra profit. Care needs to be taken not to impose requirements on the device owner that would appear to be burdensome or punitive since the device owner may have limited control over these situations.

We do agree that Weights and Measures should continue to play a cooperative role (as many are doing today) in helping to reduce and eliminate these illegal acts by immediately reporting these illegal devices, when found, to the proper authorities. It is unreasonable and beyond the scope of weights and measures authority to require

manufacturers of commercial weights and measures equipment to design equipment to be completely tamper proof when it doesn't affect the measurement transaction.

Given a scenario where a device owner does not meet the proposed changes to the LMD Code UR.4.2., and a State has adopted the revisions to the requirements, these are some issues that should be considered:

- Will the device owner be held responsible?
- If the device owner is held responsible, will States require the device owner to correct the device for a non-commercial violation for which the device owner cannot control?
- What is the cost to the device owner to correct any violations and depending on the frequency to which skimmers are installed at a station, what is the total burden to the device owner?

**WWMA: -** The Committee acknowledges this item is an Informational item and that during the July 2019 NCWM Annual meeting the submitters recommended this item be vetted further during the next cycle. During the open hearing sessions Mr. Clark Cooney (CA) supported this item as does Mr. Brent Price (Gilbarco).

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Hal Prince (Florida, Skimmer Task Group) who stated that he and the Task Group feel the item is fully developed and they support this item being made a Voting Item. Tim Chesser stated that he supported this as a Voting Item. Brent Price (Gilbarco) stated that he supports moving the item to a Voting Item. Ed Coleman (Tennessee) stated that he supported moving the item to a Voting Item. After consideration of this item the Committee agreed that this item is fully developed and recommends making it a Voting Item.

**NEWMA:** - During the NEWMA 2019 Spring Annual Meeting, the following comments were heard. Mr. Mike Sikula (NY) echoed background discussion from the NCWM 2019 Interim Meeting Report and stated he does not believe this item belongs in HB44. Mr. Russ Vires (representing the SMA) commented that the SMA opposes the item and does not believe it is within the scope of weights and measures and that the SMA recommends this item be withdrawn. NEWMA recommends this item remain as "Information" on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and the body agree that this item should have a voting status. During open hearings, Mr. John McGuire (NJ) offered support of the item while, Mr. Jim Willis (NY) comments that NY feel this item does not belong in HB44 but supports actions to thwart fraud. Mr. Marc Paquette (VT) agrees with NY and has no objection moving this item forward for voting.

**CWMA:** - During the 2019 Spring Annual Meeting, the CWMA heard the following comments. Mr. Russ Vires, representing SMA, stated opposition to this item and recommends it be withdrawn. The rationale being that it is not a Weights & Measures issue. Ms. Diane Lee (NIST OWM) recommends that the states review their own statutes.

2019 Interim Meeting. Several regulators commented in support of moving the item forward as voting. We recommend the item move forward as voting.

## LMD-20.1 Table S.2.2. Categories of Device and Methods of Sealing.

| Organization (*) not submitted | LMD-20.1 – Table S.2.2 Cat. Of Dev and Methods of Sealing Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | ✔ | | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**

- OWM recognizes the desire to move forward with electronic forms of required information and believes this is an appropriate direction in which to head. A key question the Committee must consider is what alternatives may need to be offered as we move in this direction to ensure that officials have adequate information to make enforcement decisions at the time of an inspection.

- OWM offers no opposition to the proposal but suggests the community revisit past discussions to ensure that the issues raise during those discussions are no longer of concern.

- In assessing this item, the Committee will want to consider some of the rationale and discussion surrounding the changes made to G-S.5.6. Recorded Representations in 2014 (also referenced by the submitter) to determine whether or not the points raised in the past with regard to providing required information to the official in only an electronic form will meet the needs of the regulators.

- During discussions of G-S.5.6. concerns raised within the regulatory community included the inspector's lack of access to the internet (e.g., when no internet service available in a given area or the inspector has no means to access the internet or is not permitted to insert digital media from an external source into his or her computer. Some comments heard by the Committee during these discussions indicated that inspectors sometimes don't have email or have access to it on site and the information from an event logger is typically needed at the time of inspection in order to make an enforcement decision.

- While the ultimate goal is to move in the direction of the electronic form, there is, perhaps, a spectrum of readiness. Most people seem to be supportive of the concept of electronic versions of the information and want to move in that direction; however, it is essential that inspectors be able to gain the information needed for an inspection in a form accessible at the time of the inspection. An inspector needs to have access to this information on site.

- An alternate option which provides a compromise that would address some of these concerns would be to allow electronic version provided a device had a reasonably large display where the inspector could easily access and view the information. There are already requirements that the audit trail has to be decipherable and readable and readily understandable, so the information is usable by the inspector.

- Given the need to ensure information is readable and readily understandable, OWM notes that past suggestions to use a narrow receipt (such as is provided with "Card Readers in Dispensers") as the means for printing an event log may not be a "usable" format in which to provide this information.

- In early January 2020, the submitter, Mr. Randy Moss, Wayne Fueling Systems, LLC , request via e-mail to retract this item. Mr. Randy Moss noted in his e-mail that there was some discussion of this item at the Measuring sector and that the discussion did not go very far and that he would be unable to attend the 2020 NCWM Interim. Meeting. Following this notification, Mr. Moss informed NIST, OWM that he no longer wished to retract this item and that a representative from Gilbarco will speak to this item at the 2020 Interim Meeting.

**WWMA:** 2019 Annual Meeting- No comments were heard during the open hearing session on this item. The Committee agreed that this item has merit and that it is fully developed. The Committee also recommends that the item be given a Voting status.

**SWMA:** - During Open Hearings the Committee heard comments from Brent Price (Gilbarco) who stated that he supports the item because it would allow an electronic log to replace the requirement for physical copies. After consideration of this item the Committee recommends this item as a Voting Item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree to move this item to voting status. During open hearings, Mr. Jim Willis (NY) voiced strong support for this item, indicating the need to recognize newer capabilities of electronic audit trail technology.

**CWMA:** - 2019 Interim Meeting. Charlie Stutesman, KS, commented that the item has merit, but he is concerned with how an inspector would receive the information electronically and would like to see the item move forward as developing. We recommend the item move forward as developing.

## LMD-20.2 S.1.6.10. Automatic Timeout – Pay-at-pump Retail Motor-Fuel Devices.

| Organization (*) not submitted | LMD-20.2 – S.1.6.10. Automatic Timeout – Pay-at-pump RMFD Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM (w/ suggested chgs.) | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | ✔ | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** As noted by the submitter, the automatic timeout is valid to ensure that a customer's purchased fuel is not dispensed to another customer (e.g., one customer activates the dispenser but, leaves the dispenser prior to dispensing fuel and the pump is then used by another customer).

This proposal recommends "180 seconds (or five minutes where conditions warrant)." NIST OWM believes specifying two units of time in the sentence is confusing. OWM also believes 5 minutes is too long and that the statement "where conditions warrant" is vague.

When considering whether or not to change the existing code requirements for this paragraph from 2 minutes to 3 minutes, NIST OWM recommends considering scenarios such as:

- When a customer would be at risk of having another customer use the activated system if he or she leaves the location.
- How likely would a customer's transaction be compromised given the amount of time a system must deactivate the transaction when not in use?

NIST OWM believes the two-minute time limit is appropriate. In addition, if it is decided to change the current time limit from two minutes to three minutes, then the change should also be made to similar paragraphs for other retail fuel devices including VTM, LPG, MFM, $H_2$, and EVSE systems.

**WWMA:** - 2019 Annual Meeting. The Committee agreed that the item has merit. The Committee believes the item should be given Voting status provided that the time period stated in the proposal as 180 seconds should be stated as "three minutes" and that the "(or five minutes where conditions warrant)" be deleted from the proposal as shown.

***S.1.6.10. Automatic Timeout – Pay-At-Pump Retail Motor-Fuel Devices.*** *– Once a device has been authorized, it must de-authorize within* ~~***two minutes 180 seconds***~~ ***three minutes*** ~~***(or five minutes where conditions warrant)***~~ *if not activated. Re-authorization of the device must be performed before any product can be dispensed. If the time limit to de-authorize the device is programmable, it shall not accept an entry greater than* ~~***two minutes 180 seconds***~~ ***three minutes*** ~~***(or five minutes where conditions warrant)***~~*.*

*[Nonretroactive as of January 1, 2017]*

(Added 2016)

During the open hearing session the Committee heard comments from Mr. Kurt Floren (LA County, CA), Mr. Brent Price (Gilbarco), Clark Cooney (CA DMS), Cadence Matijevich (NV) stating their support of the proposal but recommending a change to the stated five minute time period in that it was excessive.

**SWMA: -** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Brent Price (Gilbarco) who stated that S.1.6.10 is confusing where it states "(or five minutes where conditions warrant)". He would like to see that statement removed. After consideration of this item the Committee agrees with Brent Price's comment and has modified the amendment as recommended. The Committee recommends this item as a Voting Item with the modified language. Automatic Timeout – Pay-At-Pump Retail Motor-Fuel Devices. – Once a device has been authorized, it must de-authorize within two minutes 180 seconds (or five minutes where conditions warrant) if not activated. Re-authorization of the device must be performed before any product can be dispensed. If the time limit to deauthorize the device is programmable, it shall not accept an entry greater than two minutes 180 seconds (or five minutes where conditions warrant). [Nonretroactive as of January 1, 2017]

**NEWMA: -** 2019 Interim Meeting. The Committee and the body agree that this item be moved to a voting status but with a change in language. The Committee believes 3-5 minutes is ambiguous and feels a specific timeout be used. The suggested language is as follows:

> ***S.1.6.10. Automatic Timeout – Pay-At-Pump Retail Motor-Fuel Devices.*** *– Once a device has been authorized, it must de-authorize within* ~~***two minutes 180 seconds***~~ ***three minutes*** ~~***(or five minutes where conditions warrant)***~~ *if not activated. Re-authorization of the device must be performed before any product can be dispensed. If the time limit to de-authorize the device is programmable, it shall not accept an entry greater than* ~~***two minutes 180 seconds***~~ ***three minutes***~~***(or five minutes where conditions warrant)***~~*.*
>
> *[Nonretroactive as of January 1, 2017]*
>
> (Added 2016)

During open hearings, Mr. John McGuire (NJ) and Mr. Frank Greene (CT) stated that he was unsure of what circumstances would lead to a need for a 5-minute timeout. Mr. Jason Flint (NJ) advised the group that the submitter was concerned about ADA compliance and other issues.

**CWMA:** - 2019 Interim Meeting. Charlie Stutesman, KS, commented that he supports the item if the 180 seconds is changed to 3 minutes and is concerned with the phrase "where conditions warrant" in relation to the 5-minute timeout and would support the item as voting with this removed. Ivan Hankins, IA, also supports these changes. We recommend this item move forward as a voting item with the above amendments

## LMD-20.3 UR.1.1. Discharge Hose.

| Organization (*) not submitted | LMD-20.3 – UR.1.1. Discharge Hose. – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | **V** | **D** | **W** | **A** | **I** | **Opposed** | **Support** |
| OWM | | ✔ | | | | | |
| *WWMA | | | | | | | |
| *SWMA | | | | | | | |
| *CWMA Interim (Fall) | | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | ✔ | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** NIST understands the submitter's concerns regarding a retail motor fuel dispenser (RMFD) with a hose configuration in which the hose may inadvertently bump the customer fuel selection buttons and inadvertently change the customer's selection from one fuel type to another. For example, a customer selects regular fuel at the start of the

transaction, and the angle of the hose is such that the hose inadvertently bumps the fuel selection button and changes the selection to a premium grade before the customer begins to dispense the fuel without the customer noticing. This would potentially result in increased cost to the customer for the transaction. It could also potentially create a situation in which a fuel with incompatible or undesirable properties for a particular design of vehicle is dispensed into that vehicle. Such scenarios would likely result in consumer frustration and increased complaints as has already been noted in discussions on the proposal.

NIST notes that General Code paragraph G-UR.2.1. already includes a provision that equipment must be installed so that neither its operation or performance is adversely affected by any details of the installation. This paragraph would seem to be sufficient to address a scenario such as that outlined by the submitter if the configuration is affected by how the user installs the equipment. If that is the source of the problems encountered by the submitter, OWM questions whether or not the addition of specific language in the LMD Code is necessary and suggests the Committee consider whether or not this General Code paragraph may be adequate to address the submitter's concerns.

If, however, the scenario posed by the submitter is the result of the basic design and configuration of the dispenser, then OWM believes the addition of a "specification" to the specific LMD Code would be a more appropriate solution to address the issue than would a "user requirement" in either the General Code or LMD Code. Addressing the concern through a specification may help manufacturers prevent costly redesigns by increasing their awareness of such scenarios and enable them to consider solutions early in the design process. Additionally, this would also help to ensure that such an issue is adequately addressed and corrected during type evaluation since user requirements are not generally applied during type evaluation. Should such a specification be considered, it may be necessary to include a nonretroactive date, recognizing the potential impact of the requirement.

Given the questions that have been raised in the discussions of the proposal, OWM believes it is appropriate to designate this item as a Developing Item to allow the submitter to further consider the most appropriate solution and to solicit input from manufacturers, users, and regulators.

However, should the Committee decide to proceed with the proposed User Requirement, the language in new subparagraph (d) should be modified to clarify that the "inadvertent selection" is "by action of the hose."

***Note:*** *This Item was not submitted to the WWMA, SWMA, or the CWMA.*

**NEWMA:** - 2019 Interim Meeting. This proposal was a late submission to NEWMA and was accepted by the Committee to be included in our agenda. The Committee and the body agree that this item has merit and be given a developing status. During open hearings, submitter Mr. Frank Greene (CT) stated that the basis of this item has roots in a consumer complaint that his office had investigated and asked if anyone had similar experiences. Mr. Ethan Bogren (Westchester County, NY) stated that he has investigated about a dozen complaints of this nature and indicated that there is a software upgrade available from the manufacturer that will solve the issue. Mr. John McGuire (NJ) stated that moving the position of the hose, where it is attached to the pump, may also be a viable solution. The Committee also encourages the submitter to contact the manufacturer.

# VTM – VEHICLE TANK METERS

## VTM-18.1 S.3.1.1. Means for Clearing the Discharge Hose and UR.2.6. Clearing the Discharge Hose.

(This item was returned to committee at the 2019 Annual Meeting)

| Organization (*) not submitted | (Previously VTM - 1 – Means for Clearing the Discharge Hose and UR.2.6 Clearing the Discharge Hose) VTM-18.1 same title - **Initial Status – New Item (1 Items), 2020 S&T Recommendations** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **V** | **D** | **W** | **A** | **I** | **Opposed** | **Support** |
| OWM | | ✔ | | | | | |
| WWMA | | ✔ | | | | | |
| SWMA | | ✔ | | | | | |

| Organization (*) not submitted | (Previously VTM - 1 – Means for Clearing the Discharge Hose and UR.2.6 Clearing the Discharge Hose) VTM-18.1 same title - **Initial Status – New Item (1 Items), 2020 S&T Recommendations** | | | | | | |
|---|---|---|---|---|---|---|---|
| | **V** | **D** | **W** | **A** | **I** | **Opposed** | **Support** |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| MMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**

- Both Item VTM-18.1 (S.3.1.1 Means for Clearing the Discharge Hose) and Item VTM-20.1 (S.3.1. Diversion of Measured Liquid) address issues with the operation of the "manifold flush systems." OWM's comments address both items.

- Some in support of Item 18.1 oppose modifications that will restrict the use of manifold flush systems with only certain products. Some in support of Item 20.1 oppose use of manifold flush systems unless there is a restriction placed on the products with which the system can be used.

- Particularly given the diametrically opposing views, OWM believes these items should be considered together. Consequently, OWM recommends combining them into a single item so that the issues surrounding the design and use of these systems can be adequately addressed.

- As submitters of Item VTM-18.1, OWM and NY are amenable to combining the two items into a single item and working with the submitter of Item 20.1 to refine the combined proposal.

- ***Background to Consider:***

    - Based on comments at the 2019 NCWM Annual Meeting from the submitters of Item VTM-18.1 (NY & NIST OWM) and with support from the Meter Manufacturers Association, the Committee agreed to modify items (f) and (g) in the proposal and to designate part (g) as nonretroactive as of January 2022 to become retroactive January 2025.

    - At the July 2019 meeting, comments from Murray Equipment noted significant problems with fraud in Europe where they are permitted, suggesting the item be withdrawn.

    - Comments from FL at the July 2019 meeting suggested limiting the application to only certain products. This issue is addressed in the new Item 20.1 from Murray Equipment.

    - When presented for a vote, the revised item failed to obtain sufficient votes to "pass" or "fail" and was returned to Committee.

    - In reviewing the proposals in Items VTM 18.1 and VTM 20.1, one needs to recall that a manifold flush system allows liquid to be diverted from the discharge line on single hose multi-product VTMs so that liquid of one product is not mixed with liquid of another in the discharge line.

    - OWM acknowledges the safety advantages of such a system since the operator does not have to climb on top of the VTM truck to flush product from the line before delivering another product.

    - However, without appropriate safeguards, these systems represent a significant potential for fraud. Concerns have been voiced over this potential at multiple national and regional meetings.

- ***OWM offers the following comments on Item 18.1:***

- At its Fall 2019 meeting, NEWMA recommended changes to extend the *nonretroactive* date. OWM recognizes this extension may help move the item forward and, thus, help reduce the potential for fraud when using these systems. OWM would also like to hear from the Meter Manufacturers Association regarding the difficulty designing communications between the metering system and the flushing system and the feasibility of an earlier nonretroactive date.

- At its Fall 2019 meeting, NEWMA also recommended eliminating the *retroactive* date. Given the potential to facilitate fraud and a number of comments received to that effect over the past several years, OWM is concerned with the proposed elimination of the retroactive date. However, if this will allow the item to progress it may represent a viable solution. OWM heard from NY regarding the extensive number of systems already in the field, particularly mechanical ones which may not lend themselves to modification. OWM is also interested in how others view the proposal to eliminate the retroactive date.

- The remaining regional associations recommended the item be given Developing status to permit the submitters to address concerns raised during the Annual Meeting.

- Comments from the SWMA voice serious concern about the potential for cross contamination of products. The proposal in Item 20.1 may help to address this by including limitations on the type of products with which these systems can be used.

- OWM believes the term "operational" should be deleted from proposed paragraph UR.2.6.1. since the key point is that the system not be *used* when a commercial transaction is in progress.

- ***OWM offers the following comments on Item 20.1:***

  - OWM notes that one jurisdiction (NY) in NEWMA specifically opposes the limitation of product types. The S&T Committee will have to consider how to address this.

  - After discussing the proposed limitation of using manifold flush systems to only products other than engine fuels with NY W&M, OWM recognizes there may be instances where a VTM is used to transport only engine fuels of different types and grades. OWM recognizes that a blanket limitation may unintentionally impact applications that may not have been considered under Item 20.1.

  - While OWM continues to have concerns regarding the safety of delivering products such as gasoline and home heating oil through the same meter (and questions whether a single meter is suitable for such purposes), OWM recognizes this is already a widespread practice in the industry and placing a blanket limitation may not best serve the community. OWM suggests working with the submitter of 20.1 to see if there are ways to resolve specific concerns without impacting other applications.

  - In its review of these issues, OWM also noted the need to clarify when paragraph S.3.1.1. applies and suggests the addition of the terms "multiple-product, single discharge hose" to both the title and preamble.

  - While OWM recommends additional work prior to including product limitations, OWM offers the following points to consider should the Committee decide to move forward with a limitation as proposed in 20.1.

    - OWM concurs with the comments from the SWMA suggesting the use of the term "engine" rather than "vehicle." However, OWM finds the use of the term "non-engine fuels" to be cumbersome. Consequently, OWM recommends use of the phrase "used to dispense product(s) other than engine fuels" instead.

    - Just as the development of S.3.1.1. was prompted by concerns over safety, some have questioned the safety and potential for fraud with using a single metering system to measure and delivery products of a significantly different nature.

- While the concept of changes to the specification paragraphs (along with modifications to the terminology) seem appropriate, OWM believes that a change to the "user requirements" corresponding to this specification are even more important. Thus, OWM recommends the submitter consider the addition of the statement "Such flushing systems are not to be installed on delivery vehicles with metering systems used to dispense engine fuels." Following the first sentence in the proposed UR.2.6.1. OWM also suggests the elimination of the term "operational" since this speaks more to design criteria than a user requirement. OWM also has additional editorial suggestions for this paragraph.

- ***Proposed Revisions to Item Under Consideration:***

  - As noted earlier, OWM believes more work is needed to address Items 18.1 and 20.1 and the items should be combined and addressed together. OWM believes a Developing status is appropriate for the combined item.

  - In the meantime, given the collective recommendations in both Items 18.1 and 20.1 and given OWM's specific suggestions for changes to the items, OWM offers the following suggestion to replace the Items Under Consideration in both Items 18.1 and 20.1:

**S.3.1. Diversion of Measured Liquid.** – No means shall be provided by which any measured liquid can be diverted from the measuring chamber of the meter or the discharge line thereof. However, two or more delivery outlets may be installed if means are provided to ensure that:

(a) liquid can flow from only one such outlet at one time; and

(b) the direction of flow for which the mechanism may be set at any time is definitely and conspicuously indicated.

This paragraph does not apply to the following:

(1) Equipment used exclusively for fueling aircraft.

(2) Multiple-product, single-discharge hose metering systems that are equipped with systems designed to flush the discharge hose, provided the flushing system complies with the provisions of paragraph S.3.1.1. Means for Clearing the Discharge Hose**, Multiple-Product, Single-Discharge Hose Metering Systems.** (Amended 2018 **and 20XX**)

**S.3.1.1. Means for Clearing the Discharge Hose, Multiple-Product, Single-Discharge Hose Metering Systems. - Multiple-product, single-discharge hose ~~M~~metering systems may be equipped with systems specifically designed to facilitate clearing of the discharge hose prior to delivery to avoid product contamination. In such systems. a valve to temporarily divert product from the measuring chamber of the meter to a storage tank, shall be installed only if all the following are met:

(a) the discharge hose remains of the wet-hose type;

(b) the valve and associated piping are approved by the weights and measures authority having jurisdiction over the device prior to commercial use;

(c) the valve is permanently marked with its purpose (e.g. flush valve);

(d) the valve is installed in a conspicuous manner and as far from the hose reel as practical;

(e) the system clearly and automatically indicates the direction of product flow during operation of the flush system; and

***(f)*** clear means, such as an indicator light or audible alarm, is used to identify when the valve is in *use* ***on both quantity indications and any associated recorded representations (e.g., using such terms as "flushing mode" or "not for commercial use");***
***[nonretroactive as of January 1, 2024.]***

***(g) effective, automatic means shall be provided to prevent passage of liquid through any such flush system during normal operation of the measuring system; and***
***[nonretroactive as of January 1, 2024.]***

(h) no hoses or piping are connected to the inlet when it is not in use.

(Added 2018)**(Amended 20XX)**

**UR.2.6. Clearing the Discharge Hose.**

**UR.2.6.1. Clearing the Discharge Hose, General. – A manifold flush or similar system designed to accommodate the flushing of product on single-hose, multiple-product systems is not to be used during a commercial transaction. The following restrictions apply:**

**a) The inlet valves for the system are not to be connected to any hose or piping (dust covers are permitted) when not in use.**

**b) When the flushing system is in operation, the discharge hose is only to be connected to the port for the product type being flushed from the discharge line.**

**c) Following the flushing process, indications and recording elements must be reset to zero prior to beginning a commercial delivery.**

**(Added 20XX)**

**UR.2.6.2. Records.** Whenever, prior to delivery, a different product is pumped through the discharge hose to avoid contamination, a record including the date, time, original product, new product, and gallons

pumped shall be maintained. These records shall be kept for a period of 12 months and available for inspection by the weights and measures authority.

(Added 2018)

**WWMA: -** 2019 Annual Meeting. The Committee agrees that the item has merit and this item failed to be adopted when voted on during the 2019 NCWM Annual Meeting. The Committee agreed that the item should be given a Developing status and that the submitters work together to further develop the proposal considering the statements made by NIST OWM during the 2019 NCWM Annual Meeting open hearing and the amendments that were presented at that time. There were no comments heard during the open hearing session on this item.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Hal Prince (Florida) who stated that this item muddies the waters, and that this item will cause the unacceptable cross contamination of engine fuels. After consideration of this item the Committee recommends that this item move forward as a Developing Item, as long as the developers of VTM 18.1 and VTM 20.1 can combine their language to include an exception specifically for "Engine Fuels."

**NEWMA:**

2019 Fall Interim Meeting. The Committee and the body agree that this item be moved to voting status, but with some changes to language. The Committee believes that the item in its current form will place undue burden on the industry as it already uses manifold flush systems and retrofitting them will be costly. The following language is proposed:

(a) clear means, such as an indicator light or audible alarm, is used to identify when the valve is in use ***on both quantity indications and any associated recorded representations (e.g., using such terms as "flushing mode" or "not for commercial use");***

***[nonretroactive as of January 1, ~~2022~~ 2024 ~~to become retroactive January 1, 2025~~]***

***(b) effective, automatic means shall be provided to prevent passage of liquid through any such flush system during normal operation of the measuring system; and***

***[nonretroactive as of January 1, ~~2022~~ 2024 ~~to become retroactive January 1, 2025~~]***

During open hearings, submitters Mr. Jim Willis (NY) and Mr. Steve Timar (NY) recommended removing retroactive dates and extend non-retroactive to 2024.

**CWMA:**

2019 Interim Meeting. Charlie Stutesman, KS, commented that he supports the item with a developing status but is not sure about the requirements being retroactive and isn't sure this will prevent fraud. We recommend developing status.

## VTM-20.1 S.3.1. Diversion of Measured Liquid.

| Organization (*) not submitted | VTM-20.1 – S.3.1. Diversion of Measured Liquid - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |
| WWMA | | ✔ | | | | | |
| SWMA | | ✔ | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | ✔ | | | | |

| Organization (*) not submitted | VTM-20.1 – S.3.1. Diversion of Measured Liquid - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**
See Comments in VTM 18.1

**WWMA:** - 2019 Annual Meeting. The Committee recommends the item be given a Developing status and that the submitter of this proposal work with the submitters of item VTM-18.1 to coordinate the changes being recommended and to avoid conflicting requirements.
During the open hearing session, Mr. Steve Harrington (OR) stated that he see potential issues with aviation fueling systems equipped with more than one hose.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard comments from Hal Prince (Florida) who stated that he would like the term "non-Vehicle Motor Fuels" changed to "non-Engine Fuels" to protect non-vehicle engines such as boats, generators, and construction equipment from potential cross contamination of gasoline and diesel. After consideration of this item the Committee recommends this item move forward as a Developing Item, as long as the developers of VTM 18.1 and VTM 20.1 can combine their language to include an exception specifically for "Engine Fuels"

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item be withdrawn due to its possible redundancy with VTM-18.1. During open hearings, Mr. John McGuire (NJ) stated he believes VTM-18.1 and VTM-20.1 are almost the same and suggested that the submitter speak with the submitter of VTM-18.1. Mr. Steve Timar (NY) commented that NY has issues with having a carve out just for home heating fuel.

**CWMA:** - 2019 Interim Meeting. Charlie Stutesman, KS, commented that he supports the item as voting, Dick Suiter, Richard Suiter Consulting, relayed that the SWMA suggested removing the term vehicle. Loren Minnich, KS, asked whether it was appropriate to exempt trucks carrying other fuels. We believe that it is unclear what fuels are being targeted by this item and recommend the item move forward as developing.

## VTM-20.2 Table T.2. Tolerances for Vehicle Mounted Milk Meters.

| Organization (*) not submitted | VTM-20.2 – Table T.2. Tolerances for Vehicle Mounted Milk Meters. – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |
| *WWMA | | | | | | | |
| *SWMA | | | | | | | |
| CWMA Interim (Fall) | | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | | | | | | |
| *NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |

**NIST OWM:** This is a proposal to increase the tolerances for vehicle mounted pump metering systems that measure milk.

The submitter (Poul Tarp) explained that use of vehicle mounted pump metering systems to measure milk reduces the amount of time needed to collect and process the milk which reduces the cost and loss of product that would occur with a slower measurement process. But, with the use of vehicle mounted pump measuring systems, entrained

air is produced that cannot be removed and this air is measured as product. As such, with the use of a pump metering system there is an inherit loss to the buyer. Although the system has means for air elimination, not all entrained air can be removed and this is the submitter's reason for requesting that the tolerances currently in the HB be increased.

Poul Tarp also noted that it is recognized by the European Standardization Agencies: Measuring Instrument Directive (MID) and Organization of Legal Metrology (OIML) Recommendation (R) 117 *Dynamic measuring systems for liquids other than water* and the dairy industry in general that it is not possible to remove all the air from milk before measuring it. Poul Tarp notes that the MID and OIML (R) 117 standards specify that measurements of a vehicle mounted milk metering system must not result in inaccuracy of more than 0.5% at any given amount being collected from a minimum of 50 gallons and up to +500 gallons. The current VTM NIST HB 44 Section 3.31.has a designated tolerance table in volume for vehicle-mounted milk meters that was added to the code in 1989 with an acceptance tolerance of 0.3% and maintenance tolerance of 0.5 %.

For background and discussion on milk meters when these were added to NIST HB 44 in 1989, the NCWM S&T committee report noted that when a commodity is measured in volume then the quantity indication should be in volume. NIST HB 44 VTM Code, paragraph S.1.1.2. (b) also specifies that when it is an industry practice to purchase and sell milk by weight based on 8.6 lb/gal that the primary indicating element may indicate in kilogram or pounds. When this specification was placed in the handbook although industry was measuring in volume it was reported in pounds. The USDA, Agriculture Marketing Service (AMS) Dairy Division reported at that time that "until such time that the equipment and methodology needed to properly check and maintain the accuracy of vehicle mounted meters are in place, we should oppose such use for payment purposes". At that time there was no solution, however milk meters are recognized as commercial measuring devices.

The following are some points to consider as the Committee deliberates on this proposal:

- Time will be allowed for a short presentation from the submitter at the January 2020 NCWM Interim Meeting to provide additional information and possibly generate additional comments.
- Are there other methods that can be employed to remove entrained air from the milk?
- Can the amount of error introduced from entrained air be determined?
- Should NIST HB 44 tolerances be aligned with OIML(R) 117 less stringent tolerances, as recommended by the submitter.
- Should there be a separate tolerance table to address vehicle mounted pump metering systems?

# LPG – LPG AND ANHYDROUS AMMONIA LIQUID-MEASURING DEVICES

## LPG-20.1 S.2.5. Zero-Set-Back Interlock and S.2.6. Automatic Timeout.

| Organization (*) not submitted | LPG-20.1 – S.2.5 Zero-set-back Interlock and S.2.6 Auto Timeout Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM (w/comments) | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | ✔ | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** This is a follow-on to the changes that were made to the LPG Code in 2019. The current proposed changes are to separate the Zero-Set-Back Interlock and Automatic Timeout requirements in the LPG Code into two paragraphs which is similar in structure to Section 3.30 LMD Code and Section 3.31 VTM Code requirements.

If a change is made in LMD-20.2 to the Automatic Timeout Paragraph to adjust the time a system must deactivate when not in use, consideration should be made to change the Automatic Timeout paragraphs in other measuring codes.

Also see comments to LMD-20.2. S.1.6.10 Automatic Timeout – Pay-at-pump Retail Motor-Fuel Devices. NIST OWM comments to LMD-20.2 are repeated below:

NIST OWM: As noted by the submitter, the automatic timeout is valid to ensure that a customer's purchased fuel is not dispensed to another customer (e.g., one customer activates the dispenser but, leaves the dispenser prior to dispensing fuel and the pump is then used by another customer).

This proposal recommends "180 seconds (or five minutes where conditions warrant)." NIST OWM believes specifying two units of time in the sentence is confusing. OWM also believes 5 minutes is too long and that the statement "where conditions warrant" is vague.

When considering whether or not to change the existing code requirements for this paragraph from 2 minutes to 3 minutes, NIST OWM recommends considering scenarios such as:

- When a customer would be at risk of having another customer use the activated system if he or she leaves the location.
- How likely would a customer's transaction be compromised given the amount of time a system must deactivate the transaction when not in use?

NIST OWM believes the two-minute time limit is appropriate. In addition, if it is decided to change the current time limit from two minutes to three minutes, then the change should also be made to similar paragraphs for other retail fuel devices including VTM, LPG, MFM, $H_2$, and EVSE systems.

**WWMA: -** 2019 Annual Meeting. The Committee agrees with the proposal and recommends a Voting status. Mr. John Barton stated that this item is a follow-up item to changes that were adopted in the NCWM Annual Meeting in July 2019. It is intended to reformat requirements for zero-set back interlock in the LPG Code to align with requirements in the LMD and VTM Codes.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Diane Lee (NIST) who recommended the Committee harmonize the language in this item to align with the LMD Code in the handbook. After consideration of this item the Committee recommends this item be made a Voting Item with the term "two minutes" changed to "180 seconds" on lines 46 and 48 on page S&T 49.

**NEWMA:**

2019 Interim Meeting. The Committee and the body agree that this item should be listed as voting but with a language change. The Committee believes that to be consistent with other timeout requirements, the term "two minutes" shall be changed to "180 seconds) on lines 46 and 48 on page S&T 50. During open hearings, Mr. Dick Suiter (Richard Suiter Consulting) commented that he would recommend a language change to 3 minutes. Mr. John McGuire (NJ) and Mr. Jim Willis (NY) agreed with Mr. Suiter's comments.

**CWMA:**

2019 Interim Meeting. Charlie Stutesman, KS, commented that he would like this item separated and that S.2.5. move forward as voting and S.2.6. move forward as developing until the length of the time out is sorted out. We recommend the item be separated and that S.2.5. move forward as voting and S.2.6. move forward as developing for these reasons.

# WTR – WATER METERS

## WTR-20.1 S.3.2. Meter size and Directional Flow Marking Information.

| Organization (*) not submitted | WTR-20.1–S.3.2 Meter Size and Dir Flow Marking Info.- Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**

- OWM concurs with the submitter that marking of meter size and flow direction will assist in assessing compliance with suitability and installation requirements.

- In addition, OWM notes that meter size is used along with rate of flow to determine test draft size. The marking of meter size will greatly assist in properly applying test criteria.

- The submitter noted the additional marking requirements may impact manufacturing. Thus, OWM would like to hear input from water meter manufacturers regarding compliance with the proposal. Depending upon the anticipated impact, the submitter and the committee might wish to consider the addition of a nonretroactive date.

- OWM suggests modifying the proposal by:

  (1) deleting the word "information" in the preamble; and

  (2) adding the word "marked" in part (a) following the term "meter size":

  The modified proposal would read as shown below:

> **S.3.2. Meter Size and Directional Flow Marking Information.** A water meter shall be clearly and indelibly marked with the following:
>
> (a) meter size **marked** on the indicator face plate; and
>
> (b) water flow direction designated by an arrow cast or stamped into the body of the meter.

**WWMA:** - 2019 Annual Meeting. The Committee agrees this item has merit and that it should be given a Voting status. During open hearing session, Mr. Clark Cooney (CA DMS) stated his support for the item.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item should be moved to voting status. No comments were heard regarding negative aspects to the proposal.

**CWMA:** - 2019 Interim Meeting. Rachelle Miller, WI, supports this as a voting item. We recommend the item move forward as voting.

## WTR-20.2 S.1.1.4. Advancement of Indicating and Recording Elements.

| Organization (*) not submitted | WTR-20.2–S.1.1.4. Adv of Indicating & Record Ele. - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA | | ✔ | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**

- OWM appreciates and understands the perspective of the submitter in view of the variety of meter types in the marketplace and the trend for equipment to be largely electronic in operation. However, OWM believes the use of the term "mechanical" was not intended to refer to metering systems with "mechanical" indications, but rather refer to the operation of the metering system itself. The intent was to ensure a device is designed such that it will prevent interference with or manipulating of the indicating and recording elements in such a way that the measurement operation or end result is affected. In particular, it was intended to ensure that the indications and recording elements cannot be manipulated to provide a measurement indication greater than the quantity actually measured.

- OWM notes that General Code paragraphs G-S.2. Facilitation of Fraud and G-UR.1.1. Suitability of Equipment can be used to provide additional assurance to ensure that equipment is of a design such that its indications and recording elements are not susceptible to tampering or alteration.

- OWM concurs with the comments from Mr. Floren and Mr. Cooney with regard to the use of the term "normal" and agrees an alternative term or phrase should be considered or that the term "normal" simply be deleted. OWM also acknowledges similar comments from NEWMA.

- OWM agrees that a more encompassing terminology may be more appropriate and would, perhaps, encourage a more uniform understanding and application of the requirement.

- OWM offers the following possible alternative:

  **Primary indicating and recording elements shall be susceptible to advancement only by ~~mechanical~~ the operation of the device.**

- OWM notes a number of other codes in NIST Handbook 44 (particularly many measuring device codes) include similar language to that currently in Water Meters Code paragraph S.1.1.3. Advancement of Indicating and Recording Elements. Should the Committee decide to proceed with changes to paragraph S.1.1.3., the Committee may wish to introduce a future item proposing the modification of corresponding paragraphs in other codes to align with the final language in paragraph S.1.1.3.

  OWM also notes the terms "mechanical (analog)" and "electronic (digital)" are used in Water Meters Code paragraph S.1.1.5. Proving Indicator. As part of such a future item, the Committee may wish to consider striking the terms "mechanical" and "electronic" from that paragraph so that the paragraph and retaining the terms in the parentheses instead.

**WWMA:** - 2019 Annual Meeting. The Committee agreed that the item has merit however, there were some concerns about the use of the word "normal" in the proposal in reference to the operation of the device. The Committee agree this proposal should be assigned a Developing status. The Committee also recommends the submitter work with CA DMS and LA County to wordsmith the terminology used in the proposal.
During open hearing session, the Committee heard comments from Mr. Garrett Cooper (San Diego County, CA) stating that there are many non-mechanical meters in use that incorporate non-invasive technology and that the proposal should be expanded to include all meters. Mr. Kurt Floren (LA County, CA) stated that he is not comfortable with the use of the term "normal" operation and suggests that there is a better means to define this. Mr. Floren suggests the description "as intended by the manufacturer" as a replacement. Mr. Clark Cooney (CA DMS) agrees and recommends a change to the use of "normal" operation.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item be moved to a voting status, but with a language change. The Committee is concerned with the use of the term "normal". The language change suggested is "as intended by the manufacturer". During open hearings, Mr. Frank Greene (CT) suggested replacing "normal" with another term as it is ambiguous. Mr. Jason Flint (NJ) presented the language change offered by the Western Weights and Measures Association report.

**CWMA:** - 2019 Interim Meeting. Charlie Stutesman, KS, commented that he supports this item as voting if the phrase "be susceptible to" is removed and the word "advancement" is changed to "advance" as shown above. We recommend this item as a voting item with these changes

# MFM – MASS FLOW METERS

## MFM-20.1 S.1.3.3. Maximum Value of Quantity Divisions.

| Organization (*) not submitted | MFM-20.1-S.1.3.3. Maximum Value Quantity Division .- Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |

| Organization (*) not submitted | MFM-20.1-S.1.3.3. Maximum Value Quantity Division .- Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** In 2019, NIST developed a proposal designated S&T Agenda Item MFM-2 proposing changes to MFM Code paragraph S.1.3.3. to address the omission of requirements for the maximum value for the quantity-value division "d" for LNG applications.

As part of this work, NIST noticed a second omission in paragraph S.1.3.3. That is, there was no specification for the maximum value of "d" for products that fall under the category of "all gases other than CNG." NIST indicated it would delay proposing a substantive change to Item MFM-2 at that time and revisit paragraph S.1.3.3. in 2020 with a proposal to include a new subparagraph that establishes a maximum value for the quantity-value division for all gases other than CNG. The maximum value of d for other gases was not specified in paragraph A.2 Vapor (Gases) when the MFM Code was first modified in 1994 to recognize the CNG retail motor-fuel application.

A specification for the maximum size of the unit measure is:

(1) Consistently included in most weighing and measuring device codes in NIST Handbook 44;
(2) essential for facilitating the selection of suitable dispensing equipment for product applications; and
(3) necessary to facilitate transparency in sales transactions and for making comparisons in fuel pricing.

**WWMA:** - 2019 Annual Meeting. The Committee agrees that the item should have a Voting status.
Mr. John Barton (NIST) commented that there was a gap noted in the changes adopted to S.1.3.3. during the 2019 NCWM Annual Meeting where gasses other than compressed natural gas were not addressed. This proposal amends the paragraph to address that issue.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item be moved to voting status as there is no negative aspects to the proposal. During open hearings, Mr. James Cassidy (MA), Mr. Steve Timar (NY) and Mr. Jim Willis (NY), NY voiced support.

**CWMA:** - 2019 Interim Meeting. Charlie Stutesman, KS, commented that he supports this item as voting. We recommend this item as a voting item.

# EVF – ELECTRIC VEHICLE FUELING SYSTEMS

## EVF-19.1 S.3.5. Temperature Range for System Components. and S.5.2. EVSE Identification and Marking Requirements.

**Originally EVF-3**

| Organization (*) not submitted | EVF – 19-1 – S.3.5, S.5.2 - Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |

| Organization (*) not submitted | EVF – 19-1 – S.3.5, S.5.2 - Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** NIST originally introduced this proposal in 2019 to eliminate inconsistencies between the references to temperature limits in:

(1) paragraph S.3.5. Temperature Range for System Components (which currently specifies a range of - 40 °C to + 85 °C [− 40 °F to 185 °F]; and
(2) paragraph S.5.2. EVSE Identification and Marking Requirements (which currently specifies a range of – 20 °C to + 50 °C [− 4 °F to 122 °F].

NIST proposes modifying the marking requirements in paragraph S.5.2. to specify a temperature range of – 40 °C to + 85 °C [− 40 °F to 185 °F] to align the limits in paragraph S.5.2. with those specified in paragraph S.3.5.

The NIST USNWG on EVF&S's Electric Vehicle Fueling Equipment Subgroup held web meetings on January 7, 2020 and January 13, 2020 to discuss this proposal (along with other EVFS-related items on the Committee's Agenda) and comments received thus far. At the January 7 meeting, the Subgroup voted and agreed to recommend to the NCWM S&T Committee that this item be designated as a Voting Item and the proposed changes shown in the Item Under Consideration be recommended for adoption at the July 2020 NCWM Annual Meeting.

NIST believes this proposal is fully developed based on the following points.

- Clarification of this requirement is needed for this rapidly emerging technology that is already making inquiries about type evaluation and subsequent commercial service.
- Equipment only capable of operating within a narrower range complies when it is marked with the appropriate temperature limits.
- Proposals under consideration by California for its EVSE requirements indicate California Division of Measurement Standards will pursue similar modifications to corresponding code sections.
- The proposal has been circulating for over a year as part of the 2018-2019 NCWM cycle and no opposition to expanding only the range for the marked temperature limits has been expressed nor have alternate suggestions for the range been submitted during that time.

Consequently, NIST recommends the status of this proposal be upgraded from a Developing Item to a Voting Item for action at the 2020 NCWM Annual Meeting.

**WWMA: -** 2019 Annual Meeting. The Committee agrees that the item is fully developed and should be given a Voting status. Mr. Clark Cooney (CA DMS) stated his support for this item.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Spring Annual Meeting. Mr. Mike Sikula (NY) Commented that NY owns a testing system and has brought it to the meeting. Mr. Jim Willis (NY) Shared that the device can only test alternating current, not direct current. Many new installations utilize direct current. Testing is time dependent as a special (low flow) test can take over 45 minutes. Mr. Russ Vires (MT) Questioned whether this device is considered a master meter or not. Mr. Mike Sikula (NY) Does not consider the device a master meter. The committee recommends this item remain developing on the NCWM S&T Committee agenda. NEWMA recommends this Item be designated a Developing status on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and the body agree that this item be moved to voting status. During open hearings, Mr. Jim Willis (NY) commented that the markings on EVSE are currently widely varied and supports the changes. Mr. James Cassidy (MA) and Mr. John McGuire (NJ) voiced support.

**CWMA:** - 2019 Spring Annual Meeting - no additional comments were heard.

2019 Interim Meeting. We recommend this item as a voting item

## EVF-20.1 S.1.3.2. EVSE Value of the Smallest Unit.

| Organization (*) not submitted | EVF-20.1 - S.1.3.2. EVSE Value of the Smallest Unit - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | ✔ | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** This recommendation was developed by NIST to modify the current maximum value for the quantity-value division "d" specified for the electrical energy unit of measurement (kilowatt-hour) for EVSEs. The proposal would require a value of "d" with a higher resolution that is suitable for all commercial transactions, but, in particular, does not significantly lengthen the time to conduct an accuracy test of an EVSE. The present requirement would lengthen the time of the test by a factor of 25.

Therefore, NIST proposes the maximum permissible value of the indicated and/or recorded electrical energy unit by an EVSE be specified as 0.0005 megajoule (MJ) or 0.0001 kilowatt-hour (kWh)) rather than the current value of 0.005 MJ or 0.001 kWh. Measurements in either unit can be supported through calibrations by an accredited (or recognized) laboratory. During the 2014 EVFS USNWG deliberations on the draft code, industry representatives indicated that the value of d or unit of measurement could be inexpensively modified.

To provide adequate resolution (i.e., value of the kWh unit) in the displayed electrical energy transaction information and to facilitate accuracy testing of the system two alternate proposals were originally developed that recommended somewhat different modifications of paragraph S.1.3.2., including an option that would allow for a higher resolution display as part of a test mode. However, this option did not receive full support of the EVFE Subgroup and was subsequently abandoned.

A corresponding recommendation has been submitted to modify the corresponding EVFE requirement in NIST Handbook 44 Section 5.55. Timing Devices paragraph S.1.1.3. Value of the Smallest Unit to specify the maximum permissible value of the time unit for these systems.

With regard to the proposal under this item, NIST asks that the Committee consider additional modifications to the language. The language currently shown in the "Item Under Consideration" includes the phrase "shall not be greater than." After further review and discussion, NIST recommends that phrase be eliminated. Consequently, NIST recommends the proposal that currently appears in the Item Under Consideration in NCWM Publication 15 be replaced with the following.

**S.1.3. EVSE Units.**

**S.1.3.2. EVSE Value of Smallest Unit. –** The value of the smallest unit of indicated delivery by an EVSE, and recorded delivery if the EVSE is equipped to record, shall be ~~**0.005 MJ or 0.001**~~ **0.0005 MJ or 0.0001 kWh.**
**(Amended 2020)**

NIST believes this modification would help avoid any unintentional implication that increments in units such as 0.003 or 0.007 MJ or kWh would be appropriate.

The NIST USNWG on EVF&S's Electric Vehicle Fueling Equipment Subgroup is scheduled to meet prior to the January 2020 NCWM Interim Meeting, and this item is included (along with other items) on their agenda to provide for a final opportunity to discuss the proposal.

Barring any final modifications that may be proposed by that group (which NIST will forward to the S&T Committee in January 2020), NIST believes this proposal is fully developed and recommends the status of the item be changed from "Developing" to "Voting" for action at the July 2020 NCWM Annual Meeting.

**WWMA:** - 2019 Annual Meeting. The Committee agrees that the item is fully developed and should be given a Voting status. Mr. Clark Cooney (CA DMS) stated his support for this item.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item be moved to a developing status as it has merit. During open hearings, Mr. Steve Timar (NY) questioned if MMQ should also be changed. Mr. Jim Willis (NY) stated that moving the resolution to 1/10,000th may be a little extreme and recommends changing the resolution to 1/1000th. He also questions whether changing the resolution effects the time to conduct a test.

**CWMA:** - 2019 Interim Meeting. We recommend this item as a voting item.

## TXI – TAXIMETERS

**See Block 3 Items: Tolerances for Distance Testing.**

## TIM – TIMING DEVICES CODE

### TIM-20.1 S.1.1.3. Value of Smallest Unit.

| Organization (*) not submitted | TIM-20.1 – S.1.1.1. Value of Smallest Unit - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** In the 2015 updates to the Timing Devices Code to addresses the EVSE application specific requirements were inadvertently omitted for a suitable maximum value of the quantity-division for EVSE time-based indications. Specifying the maximum size of the measurement unit is consistent across the handbook codes, essential for the selection and set-up of suitable dispensing equipment, and necessary to facilitate transparency in sales transactions. EVSE time-based services are recognized along with electrical energy fees and must be clearly indicated and recorded and can vary because they:

- range in length over the course of a charging session which can be 20 minutes to 12 hours
- can include additional time-based fees (such as idling after a full charge) or
- might be assessed in conjunction with the electrical energy delivery.

An EVFS is also required to make available, in either printed or electronic format, complete and clearly defined transaction information about the start and stop time of a service, power loss event, or rate change.

Consequently, NIST proposes reorganizing and modifying current paragraph S.1.1.3 Value of Smallest Unit to specify the maximum unit of time for an EVSE equipped with an integral time measuring feature. In response to CWMA's recommendation the proposal be assigned developing status as it is unclear when to apply (b) and (c); each commercial timing device type is addressed in separate subparagraphs (i.e., (a) parking meters, (b) EVSEs, and (c) for all other timing devices such as air dispensers, laundromat dryers, etc.).

A corresponding recommendation has been submitted to modify the corresponding EVFE requirement in NIST Handbook 44 Section 3.40. EVFS-Tentative Code to specify the maximum permissible value of the electrical energy unit for systems.

The NIST USNWG on EVF&S's Electric Vehicle Fueling Equipment Subgroup held web meetings on January 7, 2020 and January 13, 2020 to discuss this proposal (along with other EVFS-related items on the Committee's Agenda) and comments received thus far. At the January 7 meeting, the Subgroup voted and agreed to recommend to the NCWM S&T Committee that this item be designated as a Voting Item and the proposed changes shown in the Item Under Consideration be recommended for adoption at the July 2020 NCWM Annual Meeting.

**WWMA:** - 2019 Annual Meeting. The Committee agrees that the item is fully developed and should be given a Voting status. There were no comments heard during the open hearing session on this item.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item be moved to a voting status. Mr. James Cassidy (MA) and Mr. Jim Willis (NY) voiced support.

**CWMA:** - 2019 Interim Meeting. Doug Musick, KS, commented that it may not be clear when part (b) and (c) apply. We recommend this item move forward as a developing item

**SMA:** - The SMA takes no position on this item at this time.

## GMA – GRAIN MOISTURE METERS 5.56 (A)

### GMA-19.1 Table T.2.1. Acceptance and Maintenance Tolerances Air Oven Method <u>for All Grains and Oil Seeds.</u>

**Previously GMA-3**

| Organization (*) not submitted | GMA – 19.1 – Table T.2.1 Accept. & Maint. Tol. Air Oven Meth for all grain and oil seeds- Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |

| Organization (*) not submitted | GMA – 19.1 – Table T.2.1 Accept. & Maint. Tol. Air Oven Meth for all grain and oil seeds- Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| WWMA | | ✔ | | | | | |
| SWMA | | ✔ | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | ✔ | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| GA NTEP Sector | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM: –** During the NTEP Grain Analyzer (GA) Sector 2019 meeting, the Sector reviewed data from Arkansas for Long Grain Rough Rice (LGRR) and other grains. The data showed that the proposal to tighten the acceptance and maintenance tolerance may not be appropriate for all grain types. The original data presented was for corn and soybeans. After reviewing the data, the Sector decided to collect inspection data from across the county. An industry representative offered to assist with data analysis and the NIST representative with work in providing them with the inspection data needed for the analysis. A request for State participation will be sent to State weight and measures. The Sector request that this remain a developing item as they move forward in evaluating additional data.

***History***

The GA Sector originally forwarded this proposal to the regional weights and measures associations with a proposed voting status. All regional weights and measures associations agreed to forward the proposal as a voting item on the 2019 NCWM Interim Agenda and the Sector appreciates their review and support. However, following the regional meetings additional data was submitted to the sector which indicates a need to consider developing different tolerance for some grain types. Through a subsequent ballot, and a majority vote, the sector agreed to recommend changing the status of the item to developing to provide the Sector time to consider additional data and changes to its original proposal. OWM agrees with the Grain Analyzer (GA) Sector's revised decision to change the status of this item to "developing."

This proposal to change the air-oven method tolerances was developed during the 2018 GA Sector meeting. During the 2018 GA Sector Meeting, Dr. Charlie Hurburgh provided the Sector with an analysis of data for 2-corn and 1-soybeans samples which included the average error for UGMA grain moisture meter technology and the average error of 2 MHz grain moisture meter technology from Iowa State weights and measures inspection data for years 2014-2017. Based on the Sectors review of the data, discussion of new tolerances, and the ability of the technologies to meet the new tolerances the Sector agreed to change the tolerances based on the data provided.

During additional discussion of what tolerances to apply to other grains, it was proposed that the same tolerances could apply to all grains, because corn is one of the more difficult grains to test and would likely have one of the largest variations when testing. No objections from States or meter manufacturers were provided during the discussion and voting to forward the item to the State regional weights and measures associations. Following the Sector meeting one State noted that there may be an issue with applying the tolerance to some grain types, specifically long grain rough rice. The GA Sector's technical advisor requested that the State forward field data to review the grain moisture meter results for LGRR and other grains. After review of the data with the proposed tolerances it was determined that a high meter failure rate could result with a change to the tolerances for some grain types.

After the Sector's Technical Advisor discussed the findings with the NTEP laboratory and the Sector members that originally proposed the tolerance change and they agreed with proposing a developing status for this item, the Sector was officially balloted and also agreed to change the originally proposed voting status to Developing to allow the Sector time to review additional data and make changes to its original proposal.

**WWMA: -** 2019 Annual Meeting. The Committee agrees the item has merit however, based on input provided from the NTEP Grain Analyzer Sector there will be additional data provided to the Committee prior to the 2020 NCWM Interim Meeting. The Committee agrees the item should be designated as a Developing item.

During open hearings the Committee heard comments from Mr. Russ Vires (SMA) stating the SMA takes no position on this item and looks forward to additional analysis by the submitter.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (SMA) who had no position on this item. The Committee also heard comments from Diane Lee (NIST) who stated that nationwide testing on more grains would be taking place to aid in any tolerance change determinations. She recommended this item remain Developing. After consideration of this item the Committee recommends this item to remain a Developing Item so that more detailed tolerances can be determined.

**NEWMA:** -

2019 Interim Meeting. The Committee and the body agree that this item should continue as a developing item. No comments were heard during open hearings.

**CWMA:**

2019 Interim Meeting. Doug Musick, KS, commented that AR had concerns that meters may not be capable of operating within these tolerances for some grains. Ivan Hankins supports developing status until more data is received. We recommend this item move forward as a developing item.

**SMA:** - Spring 2019 Meeting. The SMA takes no position on this item at this time and looks forward to additional analysis performed by the submitter.

## GMA-20.1 S.2.5 Provision for Sealing

| Organization (*) not submitted | GMA–20.1: S.2.5 Provision for Sealing. New Item (1 Item) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA* | | | | | | | |
| SWMA* | | | | | | | |
| CWMA Interim (Fall)* | | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall)* | | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| GA NTEP Sector | ✔ | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM**: These proposed changes are to address errors that were adopted into the 2020 version of NIST HB 44 GMM Code, Table S.2.5 when language was added with the intent to specify that all grain analyzers have an event logger.

In the 2020 version of NIST HB 44, the sealing table in Section 5.56(a) was changed to (1) add a nonretroactive date of 2020 to the sealing table, (2) change Category 3, which uniformly across NIST HB 44 Codes applies to "remotely configurable devices" to "configuration capability access may be unlimited or controlled through a software switch" (3) removed Category 3a and 3b., and (4) add footnotes to the table that specified when requirements would apply.

The errors that occurred with these changes are:

- the table only applies to devices placed into service after the nonretroactive date of 2020 and the table should apply to all devices placed into service after 1999
- changing the existing table for which older devices were approved may cause some older devices to no longer meet requirements for which they were previously approved; and
- Category 3 throughout NIST HB 44 applies to remotely configurable devices, although the Grain Moisture Meters Code 5.56(a) has a category 3a and 3b to apply to other forms of sealing that would need to have an event logger, a change to Category 3 creates nonuniformity across the codes.

The proposal includes a paragraph with dates of when to apply the sealing requirements for the 2019 version of table S.2.5. and a paragraph with dates of when to apply the new requirements for sealing. The format of this wording is consistent with convention used in NIST HB 44 Section 2.20. Scales Code, paragraph S.2.1.3. for expressing effective dates. Table S.2.5. will remain the same as the 2019 version. The proposed language to correct the errors in the code were voted and approved by a majority vote of the Grain Analyzer Sector. NIST OWM agrees with the Sector that the proposed language provides a method of transitioning to new sealing requirements for grain analyzers without disruption to older devices already in use in the field.

## MDM – MULTIPLE DIMENSION MEASURING DEVICES

### MDM-20.1 S.1.3. Negative Values, S.1.6. Customer Indications and Recorded Representations, S.1.7. Minimum Measurement, S.1.8. Indications Below Minimum and Above Maximum, S.2. Design of Zero ~~Tare~~Dimensional Offset and Appendix D – Definitions: dimensional offset

| Organization (*) not submitted | MDM-20.1 – S.1.3., S.1.6., S.1.7., S.1.8., S.2., App D - Initial Status – New Item (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | ✔ | | | | | | |
| WWMA | ✔ | | | | | | |
| SWMA | ✔ | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | ✔ | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** The changes proposed by this item better reflect how MDMD's can separate and measure the volume of an item/load to be measured from its conveyance material (e.g., a pallet). MDMD's do not subtract "tare" (e.g., volume of a pallet) from "gross" (volume of a pallet plus the item/load to be measured) to determine a "net" measurement. The commercial transactions however, are performed where just the item/load for which charges will be based are measured. There is no subtraction taking place, but rather a cancelling effect of the conveyance material. Consequently, we believe these changes that are proposed are appropriate.

**WWMA:** - 2019 Annual Meeting. The Committee agrees the item has merit and should be assigned a Voting status. No comments were heard during the open hearing session.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (Mettler Toledo) who supports the item as written. The Committee also heard comments from Dick Suiter (Richard Suiter Consulting, MDM Work Group Member) who clarified that the goal of the work group is to change the term "Tare" to "multi-dimensional offset." After consideration of this item the Committee recommends this item move forward as a Voting Item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item should be moved to voting status. During open hearings, Mr. Dick Suiter (Richard Suiter Consulting), a MDMD WG member, commented that MDMD code was borrowed from Scale code using "tare" as a term. The MDMD doesn't use "tare" when determining measurements so the language change is a housekeeping item.

**CWMA:** - 2019 Interim Meeting. Dick Suiter, Richard Suiter Consulting, commented that this is a housekeeping item and it should move forward as voting. Doug Musick, KS, suggested that a definition of "Dimensional Offset" may need to be developed. We recommend this item as a voting item.

**SMA:** - 2019 Fall Meeting. The SMA supports and recommends this be a Voting item.

## BLOCK 3 ITEMS (B3) TOLERANCES FOR DISTANCE TESTING IN TAXIMETERS AND TRANSPORTATION NETWORK SYSTEMS

- **B3: TXI-20.1 T. Tolerances**
- **B3: TNS-20.1 T. Tolerances**

| Organization (*) not submitted | B3 Tol for Dist Test in Taxi Mtrs. & Tranp Netwk Sys. - Initial Status – New Item ( 2 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | ✔ | | | | | |
| WWMA | | ✔ | | | | | |
| SWMA | No Recommendation | | | | | | |
| CWMA Interim (Fall) | ✔ | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | ✔ | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| SMA (Industry) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** - OWM recognizes that the "Item Under Consideration" for TXI-20.1 is stated as: Amend NIST Handbook 44 Transportation Network Systems Code as follows. However, this proposed amendment refers to the HB 44 Taximeters Code, not the TNMS Code.

OWM appreciates the efforts of the submitter to harmonize the tolerance requirements in the Taximeters Code and the TNMS Code although, we do not believe it is necessary to increase the tolerance allowed since taximeters have been required to comply with the existing tolerances for decades.

OWM also notes that TNMS do not typically assess fare charges based on intervals as do taximeters. Taximeters will accumulate fare charges by summing the number of intervals comprising the trip's distance traveled and time elapsed and multiplying by the appropriate rate. In contrast, TNMS typically base the fare charges on the total distance (and time in some cases) for the trip. For this reason, we do not believe it is necessary to amend paragraphs T.1.1.(a) and (b) to refer to "interval under test" as is shown in the proposal. OWM recommends that this proposal be further developed (perhaps with the assistance of the NIST USNWG on Taximeters) during the upcoming cycle in such a way that will better align the HB 44 Taximeters and TNMS Codes.

**WWMA:** - 2019 Annual Meeting. The Committee agrees that the item should be given a Developing status and that the submitter should work with the USNWG on Taximeters to incorporate the proposed changes into the appropriate HB 44 Codes.
During the open hearing session, the Committee heard comments from Mr. John Barton stating that the effort to align the TNMS Code with the Taximeters Code is appreciated and expressed the desire to merge the two codes in the future. Mr. Kurt Floren (LA County, CA) stated that he has concerns about the significant increase in the tolerance allowed for taximeters as proposed and that there is no data to support such a change. Mr. Clark Cooney (CA DMS) stated that he agrees with Mr. Floren and encourages further development of this proposal. Mr. Stan Toy (Santa Clara County, CA) stated that he agrees with the previous comments heard and does not believe the tolerances for taximeters should be increased.

**SWMA:** - 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this block the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Interim Meeting. The Committee and the body agree that this item should be moved to voting status. During open hearings, Mr. Jim Willis (NY) indicated that taxi meters are currently being held to tighter standard as compared to TNS and this proposal will align the tolerances in both codes. Mr. John McGuire (NJ) and Mr. James Cassidy (MA), voiced support.

**CWMA:** - 2019 Interim Meeting. Loren Minnich, KS, commented that this would give taxi's the same tolerances as TNS. We recommend this item as a voting item.

# OTH – OTHER ITEMS

## OTH-16.1 Electric Watthour Meters Code under Development

**Originally OTH-4**

| Organization (*) not submitted | OTH – 16.1 – EWM Under Development - Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA | | ✔ | | | | | |
| SWMA | No Recomnmendation | | | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | ✔ | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:**

- The USNWG on Electric Vehicle Fueling & Submetering is divided into two subgroups; one to address electric vehicle fueling and one to address utility-type watt hour meters.
- This item addresses work being done by the latter subgroup, the "Electric Watthour Meter Subgroup (EWH SG).
- The EWH SG met most recently in August 2019 in Sacramento, CA. Meetings have included web-conferencing to allow those not able to attend in person to participate.
- The SG developed a proposed addition to NIST Handbook 130's Uniform Regulation for the Method of Sale (MOS) of Commodities (see Item MOS-8 on the L&R Committee's 2019 Agenda) to specify a method of sale for electrical energy sold through these systems. This proposal, titled "Section 2.38. Non-Utility Transactions of Electrical Energy (Other than Vehicle Fueling Applications)" was adopted by the NCWM in July 2019.
- The SG continues work on a proposed NIST Handbook 44 code for EWH-type meters. The SG made significant progress on the preparation of the draft code at its August 2019 meeting and the draft is nearing completion.
- There are two remaining areas of the draft to be resolved, including requirements related to identification and markings. Two small task groups are actively working on these areas and will submit recommendations for the SG's review.
- The SG does not have an in-person meeting scheduled but expects to hold a web meeting in 2020 to review and discuss the recommendations of these task groups and, hopefully, finalize the draft code.
- OWM anticipates the SG will be ready to submit the draft to the NCWM S&T in 2020 for consideration and inclusion into the agenda in the 2020-2021 NCWM cycle.

- In Fall 2019, the SWMA took no position on this item. The remaining three regions indicated support for maintaining this as a Developing item on the Committee's agenda.
- OWM requests this item be maintained on the S&T Committee's agenda as a Developing Item while the SG finalizes its proposed HB 44 draft. OWM will continue to apprise the Committee of progress.
- Those interested in participating in this work please contact:
    - Subgroup Chairman, Ms. Lisa Warfield, (OWM)

      Email (lisa.warfield@nist.gov) or phone (301-975-3308)
    - Technical Advisor, Mrs. Tina Butcher, (OWM)

      Email (tbutcher@nist.gov) or phone (301-975-2196).

**WWMA: -** 2019 Annual Meeting. The Committee recommends that the submitter continue its efforts on the development of this item. Ms. Lisa Warfield (NIST) provided the Committee with an update on the work group's efforts. Mr. Clark Cooney (CA DMS) encouraged the support from WWMA for this proposal and appreciates the efforts of the work group developing the item.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard no comments on this item. After consideration of this item the Committee decided to make No Recommendation on this item.

**NEWMA:** - 2019 Spring Annual Meeting. Comments on this item were heard in the L&R open hearing under MOS-8. Please see the NEWMA L&R report for any comments. The committee recommends that this item remain developing on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and the body agree that this item should continue as a developing item. No comments were heard during open hearings.

**CWMA:** - 2019 Spring Annual Meeting: Charlie Stutesman, Kansas W&M, asked for an update from USNWG. Lisa Warfield, NIST OWM, commented that there should be an update available in the Fall.

2019 Interim Meeting. We support the work of the USNWG on Electric Vehicle Fueling and Submetering and we recommend this item remain developing

## OTH-18.4 Appendix D – Definitions: batch (batching)

**Originally OTH -5 was returned to committee**

| Organization (*) not submitted | OTH – 18.4 – Appendix D – Batch (Batching) - Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | ✔ | | | | |
| WWMA | | | ✔ | | | | |
| SWMA | | | ✔ | | | | |
| CWMA Interim (Fall) | | ✔ | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| NEWMA Interim (Fall) | | ✔ | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |
| SMA (Industry) | | | | | | ✔ | |

**NIST OWM:** OWM reiterates its previous comments regarding this item and refers to the following points as justification for our recommendation that this item should not move forward.

- The term "batching" does not describe any particular device or type of device but instead is a type of process that can be accomplished through the use of various types of devices.

- OWM does not believe the stated purpose of this proposal will be fulfilled with the adoption of this item. It is not clear when (if ever) the process of batching can be considered a metrologically significant event.
- The two references of batching scales currently found in the HB 44 Scales Code that the submitter has cited apply to types of devices that are believed to be obsolete and not likely to be currently found in commercial service.
- There are no references included in the proposed definition to identify which specific HB 44 device code/sections this definition will apply.

**WWMA: -** 2019 Annual Meeting. The Committee agreed that this proposed change is unnecessary and that the item should be withdrawn. Mr. Russ Vires (SMA) stated that the SMA opposes this item because "batching" is a process and not a device. Mr. John Barton (NIST) commented that the stated purpose of this item has not been met by the proposed changes. Also, that the term batching is an application of devices used in a process and should not be used in the context of a device specification.

**SWMA: –** 2019 Annual Meeting. During Open Hearings the Committee heard comments from Russ Vires (SMA) who opposes this item. He stated that he feels batching is an application, not a device type. We also heard comments from Dick Suiter (Richard Suiter Consulting) who stated that Batching goes beyond just a method. After consideration of this item the Committee recommends this item be Withdrawn. Based on discussion, batching is a process or a system, not a device.

**NEWMA:** - 2019 Spring Annual Meeting. A single comment was heard from Mr. Russ Vires (representing the SMA) that the SMA opposes this item on the basis that batching is an application and not a device type. The committee recommends this as a Voting item on the NCWM S&T Committee agenda.

2019 Interim Meeting. The Committee and the body agree that this item should be moved to developing status as we do not deem item to be fully developed. During open hearings, Mr. John McGuire (NJ) raised the concern that this definition could possibly be used for blending at retail motor fuel devices.

**CWMA:** - 2019 Spring Annual Meeting: Russ Vires, SMA, stated that SMA opposes this item.

2019 Interim Meeting. Loren Minnich, KS, commented that he is working on changes and requested the item be given a developing status. We recommend a developing status.

**SMA:** 2019 Fall Meeting. The SMA opposes this item.

Rationale: The SMA feels that batching is an application, not a device type.

## OTH-20.1 Appendix D – Definitions: submeter

| Organization (*) not submitted | OTH – 20.1 – Appendix D –Submeter - Initial Status – D (1 Items) 2020 S&T Recommendations | | | | | | |
|---|---|---|---|---|---|---|---|
| | V | D | W | A | I | Opposed | Support |
| OWM | | | | | | | |
| WWMA | ✔ | | | | | | |
| *SWMA | | | | | | | |
| *CWMA Interim (Fall) | | | | | | | |
| CWMA Annual (Spring) | | | | | | | |
| *NEWMA Interim (Fall) | | | | | | | |
| NEWMA Annual (Spring) | | | | | | | |
| NCWM S&T Committee Interim | | | | | | | |

**NIST OWM:** NIST is the submitter of this proposal. An EVSE supplies and assesses charges (in units of the kilowatt-hour) for electrical energy that is used to fuel a vehicle. An EVSE may also have the capability to separately assess fees for time-based and other services. Applicable EVSE handbook (44 [2015] and 130 [2013]) requirements for both electricity and time have been available for over four years.

An EVSE is unlike other traditional vehicle refueling equipment that must comply with legal metrology requirements. Any terminology that further clarifies what constitutes a commercial EVSE and any accessories subject to weights and measures' jurisdiction is helpful to the equipment designer, installer, and regulator. Clearly distinguishing where the responsibility for such equipment begins and ends is essential. Being able to make this distinction may also be useful to ensure installations are not interfaced with other equipment that might have a detrimental effect on the normal operation of an EVSE or it's metrological integrity. At some point jurisdictions may also deem it necessary to establish policy to clarify for staff, industry, and the public, weights and measures' role and relationship to the service utility, station owner/operator, and end user. Because there are multiple jurisdictions (i.e., 34 states) where legislative bodies are making decisions about which entity has legal authority over the sale of electricity as a vehicle fuel, this proposal should be considered on a national basis. NIST encourages the jurisdictions to study the proposed modification to the definition of "submeter" as it relates to current local requirements and provide input to the S&T Committee on Agenda Item OTH-20.1.

The NIST USNWG on EVF&S's Electric Vehicle Fueling Equipment Subgroup held web meetings on January 7, 2020 and January 13, 2020 to discuss this proposal (along with other EVFS-related items on the Committee's Agenda) and comments received thus far. At the January 7 meeting, the Subgroup voted and agreed to recommend to the NCWM S&T Committee that this item be designated as a Voting Item and the proposed changes shown in the Item Under Consideration be recommended for adoption at the July 2020 NCWM Annual Meeting.

NIST would agree that the proposed modification of the "submeter" definition to recognize commercial electrical equipment that is a *meter* or is designed to operate as a system is a more accurate description of the possible configurations of key components in an *electric* submeter device application. It appears that the submitter intends for the term to apply to multiple types of submeter applications. There are other instances where submeters are in use to supply and bill end users for utility-type commodities other than electricity (e.g., natural gas and water). The submitter may wish to consider that terms such as submeter and master meter also apply to commercial equipment addressed in NIST Handbook 44 Section 3.33 Hydrocarbon Gas Vapor-Measuring Devices and Section 3.36 Water Meters.

**WWMA:** - 2019 Annual Meeting. The Committee agrees this proposal has merit and that it is fully developed and should be given a Voting status. The Committee also recognizes that the stated Purpose should be amended to state the change would affect to EVSE Code paragraph 3.40., Appendix D, Definitions as shown.

~~**submeter.** A system furnished, owned, installed, and maintained by the customer who is served through a utility owned master meter. [3.40]~~

**submeter - a meter or meter system downstream of the master meter. [3.40]**
**(Added 20XX)**

During open hearings the Committee heard comments from Ms. Lisa Warfield (NIST) stated that this item is fully developed and ready for a Voting status. Mr. Kevin Merrit (ID) asked the question would this language apply to a LPG meter? Ms. Warfield responded that this does not apply to a LPG meter and that the definition for "submeter" referred to in this proposal should not be confused with the use of "master meter" as used when referring to calibrations. Mr. Kurt Floren (LA County, CA) asked the question "is the term master meter defined?" Ms. Warfield responded that the term "master meter" is defined and that the definition was derived from that definition from Measurement Canada.

# Appendix A

# Background/Discussion on Agenda Items of the Specifications and Tolerances (S&T) Committee

## Subject Series List