

98th Annual Meeting of the National Conference on Weights and Measures

July 14 – 18, 2013
Louisville, Kentucky

Addendum Sheets to the Interim Report of the Specifications and Tolerances Committee

300 INTRODUCTION

The Specifications and Tolerances (S&T) Committee (hereinafter referred to as “Committee”) submits its Interim Report to the National Conference on Weights and Measures (NCWM). The Report consists of the Interim Report offered in Publication 16, “NCWM Committee Reports,” and this Addendum. Page numbers in the tables below refer to pages in Publication 16.

Presented below is a list of voting and information items. Voting items are indicated by the letter **V**, if the voting item is part of the Consent calendar, by the letter **VC**. If the item is an Information item, it is indicated by the letter **I**, if the item is Withdrawn, it is indicated by the letter **W**. Items marked with a **D** after the key numbers are Developing items. The developing designation indicates an item has merit; however, the item is returned to the submitter for further development before any action at the national level. The Committee’s Final Report is proposed to be grouped in the following order.

Consent Calendar Items		
Reference Key Number	Title of Item	Page No.
320	SCALES	3
320-1	VC S.6.4. Railway Track Scales and Appendix D – Definitions	3
320-4	VC Appendix C – Units of Mass (ton).....	3
321	BELT-CONVEYOR SCALE SYSTEMS	4
321-1	VC UR.1.2. Conveyor Installation	4
321-2	VC Appendix D – Definitions: Belt Revolution, Belt Load, Integrator, Loading Point, and Master Weight Totalizer	4
330	LIQUID MEASURING DEVICES	4
330-2	VC Table T.2. Accuracy Classes and Tolerances for Liquid Measuring Devices	4
331	VEHICLE-TANK METERS	6
331-1	VC Table 1. Accuracy Classes and Tolerances for Vehicle-Tank Meters	6
331-2	VC T.4. Product Depletion Test.....	6
337	MASS FLOW METERS	7
337-3	VC Table T.2. Accuracy Classes and Tolerances for Mass Flow Meters	7
356	GRAIN MOISTURE METERS	8
356-1	VC Table S.2.5. Categories of Device and Methods of Sealing.....	8
356-2	VC UR.3.4. Printed Tickets	8

Voting Items

Separate vote (V) of the NCWM is being requested on the following items:

Reference Key Number	Title of Item	Page No.
336	WATER METERS	6
336-1	V UR.3. Installation Requirements.....	6

Withdrawn Items

The following items were withdrawn (W) and require no formal action of the NCWM:

Reference Key Number	Title of Item	Page No.
320	SCALES	3
320-2	W Table 4 – Minimum Test Weights and Test Loads.....	3
320-3	W T.N.3., Table 6. Maintenance Tolerances.....	3
330	LIQUID MEASURING DEVICES	4
330-1	W S.1.6.4.2 (a) Product Identity and UR.3.2. Unit Price and Product Identity	4

Information and Developing Items

The following items are informational (I) or under development (D) and require no formal action of the NCWM:

Reference Key Number	Title of Item	Page No.
320	SCALES	4
320-5	I Part 2.20. Weigh-In-Motion Vehicle Scales for Law Enforcement – Work Group.....	4
330	LIQUID MEASURING DEVICES	4
330-3	I N.2.4.2. Wholesale Devices.....	5
330-4	I UR.3.3. Computing Device.	5
337	MASS FLOW METERS	7
337-1	I Appendix D – Definitions: Diesel Liter and Diesel Gallon Equivalents (DLE, DGE).....	
337-2	I S.1.2. Compressed Natural Gas Dispensers, S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel, S.5.2. Marking of Gasoline Volume Equivalent Conversion Factor	7
354	TAXIMETERS	7
354-1	D Global Positioning Systems for Taximeters	7
356	GRAIN MOISTURE METERS	8
356-3	D Appendix D – Definitions: Remote Configuration Capability	8
360	OTHER ITEMS – DEVELOPING ITEMS	8
360-1	D International Organization of Legal Metrology (OIML) Report	8
360-2	D G-S.1. Identification. – (Software)	8
360-3	D Part 3.30. Price Posting and Computing Capability and Requirements for a Retail Motor-Fuel Dispenser (RMFD)	10

360-5	D	USNWG on Taximeters – Taximeter Code Revisions and Global Positioning System-Based Systems for Time and Distance Measurement.....	10
360-6	D	Global Positioning Systems for Taximeters	11
360-7	D	Appendix D – Definitions: Remote Configuration Capability	11

Details of All Items
(In order by Reference Key)

Recommendations from the CWMA, NEWMA, and other correspondence received by the Committee and referenced in the open hearings will be included or summarized in the Committee’s Final Report.

320 SCALES

320-1 VC S.6.4. Railway Track Scales and Appendix D – Definitions

The committee heard no opposition to this item. Comments in support were heard from Darrell Flocken, Mettler-Toledo on behalf of the SMA and Rafael Jimenez, AAR.

320-2 W Table 4 – Minimum Test Weights and Test Loads

No change.

320-3 W T.N.3., Table 6. Maintenance Tolerances

The committee heard suggestions from Darrell Flocken, Mettler-Toledo, speaking on behalf of SMA and Julie Quinn, MN, to return this item to an information status to allow further refinement of the table. However, the committee still believes confusion over application of the table might be better addressed in training and through examples provided in the NIST EPOs. The committee’s decision to withdraw this item does not preclude someone or group from proposing a new item to better clarify how the values in table 6 are to be applied.

320-4 VC Appendix C – Units of Mass (ton)

The Committee heard comments in support of the item from Darrell Flocken, Mettler-Toledo, on behalf of the SMA and Bill Ripka, Thermo Fisher Scientific.

320-5 I Part 2.20. Weigh-In-Motion Vehicle Scales for Law Enforcement – Work Group

Note: This item was originally numbered 360-4 in the Committee’s 2013 Interim Report. This item was moved to the 320 Scales Section and renumbered as 320-5 during the Committee’s Open Hearings.

The committee heard comments from Darrell Flocken, Chairman of the WIM WG, who indicated that the WG has finished its initial draft and clarified that the current scope of the draft code is strictly for screening vehicles. Based upon a previous request by Mr. Flocken at the Interim meeting for the community to provide input to the WG on the draft code, OWM provided three recommendations for the WG to consider. It is the committee's understanding that Mr. Flocken will share those recommendations with members of the WG prior to their next meeting and the WG will consider whether or not additional revisions to the draft code are necessary. The committee also heard support for the draft code from Dan Middleton, Battelle, speaking on behalf of the FHWA who echoed Mr. Flocken's comments.

321 BELT-CONVEYOR SCALE SYSTEMS

321-1 VC UR.1.2. Conveyor Installation

The committee heard comments in support of the item from Bill Ripka, Thermo Fisher Scientific, on behalf of Thermo Fisher Scientific and the USNWG on BCS and Darrell Flocken, Mettler-Toledo, on behalf of the SMA. Mr. Ripka commented that weights and measures officials should evaluate belt-conveyor scale system performance and not prescribe design criteria. OWM agreed with Mr. Ripka's comments.

321-2 VC Appendix D – Definitions: Belt Revolution, Belt Load, Integrator, Loading Point, and Master Weight Totalizer

The committee heard comments in support of the item from Bill Ripka, Thermo Fisher Scientific, who indicated that the definitions developed by the USNWG on BCS are very helpful in understanding terms that are not part of everyone's vocabulary. Mr. Ripka also encouraged other groups to review definitions pertinent to their expertise and make recommendations for updates to the definitions as appropriate.

330 LIQUID MEASURING DEVICES

330-1 W S.1.6.4.2 (a) Product Identity and UR.3.2. Unit Price and Product Identity

No change.

330-2 VC Table T.2. Accuracy Classes and Tolerances for Liquid Measuring Devices

The committee took comments on this item along with items 331-1 and 337-3. The committee heard no comments in opposition to these items. Dmitri Karimov, Liquid Controls stated that this is a good housekeeping item and supports considering this item in conjunction with related items in the Vehicle-Tank Meters Code and the Mass Flow Meters Code.

330-3 I N.4.2.4. Wholesale Devices

The committee received an alternate proposal from the NCWM On-Position Forum from Mr. Randy Jennings, TN. During the open hearings the committee received a proposed modification to the Item Under Consideration by the original submitter Constantine Cotsoradis. In addition to the other changes proposed in the Item Under Consideration, Mr. Cotsoradis proposed replacing the new paragraph N.4.2.4.2. with the following:

N.4.2.4.2. Special Test, Field Evaluation. – A “Special” test shall be made during field tests at or near the minimum discharge flow rate developed under the conditions of installation, but not less than the minimum discharge rate marked on the device. Additional “Special” tests may be conducted at flow rates down to and including the maximum discharge rate marked on the device.

This proposed change was supported by Mr. Jennings.

The committee heard additional comments from conference members expressing confusion over what minimum testing should be required.

OWM noted that the original purpose of the “Special” test was to assess the condition of the meter and determining whether or not it was being properly maintained. When this requirement was first added the dominant meter technology was positive displacement meters. Since that time a number of different technologies have been developed and it may be necessary to reassess what minimum testing is necessary. Ross Andersen, retired NY Bureau Weights and Measures, suggested that the specifics of what testing is required is best addressed in the NIST EPOs.

The committee heard comments from Michael Keilty, chairman of the NTEP Measuring Sector, recommending that the item be moved to an information status. He suggested asking the Sector to review this issue and provide suggestions to the committee on how to best address special tests on wholesale devices. This suggestion was supported by several other NCWM members. Dmitri Karimov, Liquid Controls expressed concern about testing at flow rates which create pressures exceeding the rated pressure of the meter.

The committee agreed to ask the Measuring Sector to review and provide suggestions on this issue.

330-4 I UR.3.3. Computing Device.

The committee heard comments from OWM suggesting that the proposed modifications to UR.3.3.(c)(2) are unnecessary given that the paragraph already includes a provision permitting the use of electronic receipts. OWM also noted that the proposed wording in UR.3.3.(c)(2) inadvertently require that the system be capable of providing an electronic receipt upon customer demand regardless of whether or not the system is capable of providing one. The committee heard multiple comments in support of eliminating the proposed revisions to UR.3.3.(c)(2). The committee also heard comments from multiple weights and measures jurisdictions expressing the need to retain the requirement for a hard copy receipt for those consumers who do not have access to an electronic version.

Comments received during the Open Hearings indicated that, in applications where receipts are required, the following principles should apply:

- A printed receipt must be made available to the customer.
- If a customer doesn't want a receipt, it is not necessary to provide one.
- The customer may be given the option of receiving an electronic receipt in lieu of a printed receipt.

The committee also heard comments from both weights and measures jurisdictions and industry representatives suggesting that a provision be added to the General Code recognizing the acceptance of electronic receipts.

331 VEHICLE-TANK METERS

331-1 VC Table 1. Accuracy Classes and Tolerances for Vehicle-Tank Meters

The committee took comments on this item along with items 330-2 and 337-3. The committee heard no comments in opposition to these items. Dmitri Karimov, Liquid Controls stated that this is a good housekeeping item and supports considering this item in conjunction with related items in the Vehicle-Tank Meters Code and the Mass Flow Meters Code.

331-2 VC T.4. Product Depletion Test

The committee considered additional revisions proposed by the CWMA to remove the reference to “the volume delivered in one minute.” OWM noted that this would result in a tolerance expressed in gallons per minute. Consequently, the committee agreed with the Item Under Consideration as originally proposed. The committee also agreed with NEWMA’s suggestion to include examples of how to apply the tolerances in the NIST EPO’s and training materials.

336 WATER METERS

336-1 V UR.3. Installation Requirements

The committee heard comments in opposition to this item from Michael Keilty, Endress & Hauser Flowtec AG USA and Kristen Macey, CA suggesting that the adding requirements to address installation would be redundant. Ms. Macey also expressed opposition in distinguishing between non-utility type and utility type water meters. NIST OWM commented that the proposed language is consistent with that appearing in other device codes in HB-44 and intended for the same purpose. The committee received letters of support from Badger Meter; Elster AMCO Water, LLC; Sensus; Master Meter, Inc.; and Neptune Technology Group. Dmitri Karimov, Liquid Controls, speaking on behalf of the companies who were unable to attend this meeting and the Meter Manufacturers Association also expressed support for this item.

337 MASS FLOW METERS

337-1 I Appendix D – Definitions: Diesel Liter and Diesel Gallon Equivalents (DLE, DGE)

The committee received a proposal from Douglas Horne, Clean Vehicle Education Foundation, to modify the Item Under Consideration. Mr. Horne proposes separate definitions for CNG and LNG gallon equivalent values. The committee suggests he work with the steering committee to further refine the proposal and suggest changes to the item as appropriate. Mr. Horne's proposals will be posted on the NCWM website with other documents relative to the committee's final report.

During Open Hearings the committee heard overwhelming comments opposing the use of gallon equivalents and favoring the use of mass as the method of sale. The committee also heard a comment suggesting that volume units be permitted as a method of sale for LNG. The committee also heard comments indicating that weights and measures officials would be amenable to permitting the posting or displaying of supplemental information regarding gallon equivalent values.

337-2 I S.1.2. Compressed Natural Gas Dispensers, S.1.3.1.1. Compressed Natural Gas Used as an Engine Fuel, S.5.2. Marking of Gasoline Volume Equivalent Conversion Factor

The committee received a proposal from Douglas Horne, Clean Vehicle Education Foundation, to modify the Item Under Consideration. Mr. Horne proposes separate requirements for devices dispensing CNG and LNG. The committee suggests he work with the steering committee to further refine the proposal and suggest changes to the item as appropriate. Mr. Horne's proposals will be posted on the NCWM website with other documents relative to the committee's final report.

During Open Hearings the committee heard overwhelming comments opposing the use of gallon equivalents and favoring the use of mass as the method of sale. The committee also heard a comment suggesting that volume units be permitted as a method of sale for LNG. The committee also heard comments indicating that weights and measures officials would be amenable to permitting the posting or displaying of supplemental information regarding gallon equivalent values.

337-3 VC Table T.2. Accuracy Classes and Tolerances for Mass Flow Meters

The committee took comments on this item along with items 330-2 and 331-1. The committee heard no comments in opposition to these items. Dmitri Karimov, Liquid Controls stated that this is a good housekeeping item and supports considering this item in conjunction with related items in the Vehicle-Tank Meters Code and the Mass Flow Meters Code.

354 TAXIMETERS

354-1 D Global Positioning Systems for Taximeters

No change.

356 GRAIN MOISTURE METERS

356-1 VC Table S.2.5. Categories of Device and Methods of Sealing

The committee heard no opposition to this item. OWM reiterated the comments it provided during the 2013 NCWM Interim Meeting.

356-2 VC UR.3.4. Printed Tickets

The committee heard no opposition to this item. OWM reiterated the comments it provided during the 2013 NCWM Interim Meeting.

356-3 D Appendix D – Definitions: Remote Configuration Capability

No change.

360 OTHER ITEMS – DEVELOPING ITEMS

360-1 D International Organization of Legal Metrology (OIML) Report

No change.

360-2 D G-S.1. Identification. – (Software)

The committee received a proposal from the NTEP Software Sector following its March 2013 meeting to replace the Item Under Consideration with the following:

G-S.1. Identification. – All equipment, except weights and separate parts necessary to the measurement process but not having any metrological effect, shall be clearly and permanently marked for the purposes of identification with the following information:

- (a) the name, initials, or trademark of the manufacturer or distributor;
- (b) a model identifier that positively identifies the pattern or design of the device;

(1) The model identifier shall be prefaced by the word “Model,” “Type,” or “Pattern.” These terms may be followed by the word “Number” or an abbreviation of that word. The abbreviation for the word “Number” shall, as a minimum, begin with the letter “N” (e.g., No or No.). The abbreviation for the word “Model” shall be “Mod” or “Mod.” Prefix lettering may be initial capitals, all capitals, or all lowercase.

[Nonretroactive as of January 1, 2003]

(Added 2000) (Amended 2001)

- (c) a nonrepetitive serial number, except for equipment with no moving or electronic component parts and ~~not built for purpose software-based software devices~~ software;

[Nonretroactive as of January 1, 1968]
(Amended 2003)

(1) *The serial number shall be prefaced by words, an abbreviation, or a symbol, that clearly identifies the number as the required serial number.*

[Nonretroactive as of January 1, 1986]

(2) *Abbreviations for the word "Serial" shall, as a minimum, begin with the letter "S," and abbreviations for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., S/N, SN, Ser. No., and S. No.).*

[Nonretroactive as of January 1, 2001]

(d) the current software version or revision identifier ~~for not-built-for-purpose software-based electronic devices~~, which shall be directly linked to the software itself;

[Nonretroactive as of January 1, 2004]

(Added 2003) (~~Amended 20XX~~)

(1) *The version or revision identifier shall be prefaced by words, an abbreviation, or a symbol, that clearly identifies the number as the required version or revision.*

[Nonretroactive as of January 1, 2007]

(Added 2006)

(2) *Abbreviations for the word "Version" shall, as a minimum, begin with the letter "V" and may be followed by the word "Number." Abbreviations for the word "Revision" shall, as a minimum, begin with the letter "R" and may be followed by the word "Number." The abbreviation for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., No or No.).*

[Nonretroactive as of January 1, 2007]

(Added 2006)

(3) The version or revision identifier shall be accessible via the display. Instructions for displaying the version or revision identifier shall be described in the CC. As an exception, permanently marking the version or revision identifier shall be acceptable under the following conditions:

(a) The user interface does not have any control capability to activate the indication of the version or revision identifier on the display, or the display does not technically allow the version or revision identifier to be shown (analog indicating device or electromechanical counter) or

(b) the device does not have an interface to communicate the version or revision identifier.

(e) an NTEP CC number or a corresponding CC Addendum Number for devices that have a CC.

(1) *The CC Number or a corresponding CC Addendum Number shall be prefaced by the terms "NTEP CC," "CC," or "Approval." These terms may be followed by the word "Number" or an abbreviation of that word. The abbreviation for the word "Number" shall, as a minimum, begin with the letter "N" (e.g., No or No.)*

[Nonretroactive as of January 1, 2003]

The required information shall be so located that it is readily observable without the necessity of the disassembly of a part requiring the use of any means separate from the device. (Amended 1985, 1991, 1999, 2000, 2001, 2003, ~~and~~, 2006 ~~and~~ **201X**)

G-S.1.1. Location of Marking Information for ~~Not-Built-For-Purpose~~ All Software-Based Devices. – For ~~not-built-for-purpose~~, software-based devices, either:

(a) *The required information in G-S.1. Identification. (a), (b), ~~(d)~~, and (e) shall be permanently marked or continuously displayed on the device; or*

(b) *The CC Number shall be:*

(1) *permanently marked on the device;*

(2) *continuously displayed; or*

(3) accessible through an easily recognized menu and, if necessary, a submenu. Examples of menu and submenu identification include, but are not limited to, "Help," "System Identification," "G-S.I. Identification," or "Weights and Measures Identification."

Note: For (b), clear instructions for accessing the information required in G-S.I. (a), (b), and (d) shall be listed on the CC, including information necessary to identify that the software in the device is the same type that was evaluated.

[Nonretroactive as of January 1, 2004]

(Added 2003) (Amended 2006 and 20XX)

The committee heard a comment from Tim Tyson, KS, who recognized the Sector's work on this item and suggested that consideration be given to changing the status of the item to informational. The committee agrees that it may be appropriate to change the status of the item; however, the committee would like to hear input from the NTEP Sectors and industry associations regarding the revisions prior to making that decision. Consequently, the committee asks that the NTEP Sectors and industry associations review this proposal at their next meetings.

360-3 D Part 3.30. Price Posting and Computing Capability and Requirements for a Retail Motor-Fuel Dispenser (RMFD)

The Committee heard comments from Juana Williams, NIST OWM, who emphasized the importance of continuing to develop guidelines and information to assist regulatory officials and industry in interpreting and applying requirements relative to pre- and post-delivery discounts. NIST OWM is working on the development of guidelines and examples that could be included in NIST EPOs and training materials and has already received positive feedback from members of the Task Group on the examples developed thus far. This information may also be of use to NTEP in the further development of checklist criteria for inclusion in NCWM Publication 14.

Beth Treseder, API, indicated that API and others within industry would appreciate copies of acceptable receipts when these are available.

The Committee believes that additional work is needed to develop examples and information that will enable consistent and uniform application of the requirements adopted in 2012 and encourages OWM's continued work on such examples. The Committee asks that the Task Group continue its work by developing and providing additional examples of acceptable receipts to assist regulatory officials and industry in interpreting and applying these requirements. The Committee believes that examples of receipts from deliveries that include both pre- and post-delivery discounts in a single transaction are needed.

360-5 D USNWG on Taximeters – Taximeter Code Revisions and Global Positioning System-Based Systems for Time and Distance Measurement

The Committee heard an update on the work of the USNWG from Juana Williams, NIST OWM. Ms. Williams noted that the USNWG held a teleconference on July 10 and has established a subcommittee to address GPS-based time and distance measuring systems. John Barton, NIST OWM, Chair and Technical Advisor to the USNWG further noted that the Work Group includes an expert in GPS measurements from NIST's Time and Frequency Division.

The Committee heard comments questioning whether or not GPS-based systems account for variations in elevation. Other members commented that many GPS's do have the capability to account for these changes.

The Committee encourages the continued work of the USNWG and looks forward to continued developments in this area.

360-7 D Appendix D – Definitions: Remote Configuration Capability

The Committee heard comments from Juana Williams, NIST OWM, who reiterated OWM's comments from the 2013 Interim Meeting suggesting that it may be appropriate to develop separate requirements to address new and future technologies which can be remotely configured with removable media. OWM plans to develop draft language and ask for input from the various Sectors at their upcoming meetings. Ms. Williams also noted the suggestion made at the 2013 NCWM Interim Meeting by Dmitri Karimov, LC, speaking on behalf of the MMA, that a provision might be added to the General Code to address this type of equipment.

Julie Quinn (MN) agreed with OWM's comments and indicated support for possibly including requirements in the General Code to address newer and emerging technologies. Dmitri Karimov, LC, speaking on behalf of MMA, concurred with this suggestion.

Mr. Kenneth Ramsburg, Maryland | Committee Chair *Kenneth Ramsburg*
Mr. Paul Moyer, Nebraska | Member
Mr. Brett Gurney, Utah | Member
Mr. Mahesh Albuquerque, Colorado | Member
Ms. Jane Zulkiewicz, Town of Barnstable, MA | Member
Mr. Luciano Burtini, Measurement Canada | Canadian Technical Advisor
Ms. Tina Butcher, NIST, OWM | NIST Technical Advisor
Mr. Rick Harshman, NIST, OWM | NIST Technical Advisor

Specifications and Tolerances Committee