

**Multiple Dimension Measuring Device Work Group**  
**May 7-8, 2019**  
**Ohio Agriculture Complex - Admin Building, Columbus, Ohio**  
**Meeting Agenda**

**Schedule**

Tuesday, May 7, 2019

- 1:00 PM Meeting Call to Order
- i. **Introductions and Welcome** (Chris Senneff)
  - ii. **Reiteration of NTEP MDMD Work Group Mission** (D. Flocken)
  - iii. **Sector secretary assignment** (D. Flocken / C. Senneff)
- 1:30 PM Status Reports
- iv. **Report – 2018 NCWM Interim Meeting** (D. Flocken)
  - v. **Report – Recent Measurement Canada Type Evaluation Activity** (P. Turgeon)
  - vi. **Report – Recent NTEP MDMD Type Evaluation Activity** (T. Buck)
- 2:00 PM Carry Over Items
1. **Review meeting summary from May 2018 meeting** (R. Kennington)
  2. **Review changes to NIST, HB44 MDMD code since last meeting** (D. Flocken)
  3. **Measurement Canada update** (P. Turgeon)
- 3:00 PM Break (20 min.)
- 3:20 PM Carry Over Items - Continued
4. **Review OIML Activity Related to R129** (P. Turgeon / R. Harshman)
  5. **Review changes to 2019 edition of Publication 14, MDMD Checklist** (D. Flocken)
- 5:00 PM Adjourn for the day

Wednesday May 8, 2019

- 8:00 AM Carry Over Items – Continued
6. **In-motion Forklift Based Pallet Dimensioning – Work Group Report** (B. Budinger)
  7. **Recommendation to add Tolerance information to Pub 14** (Sub work group)
  8. **Misc. Items for General Discussion** (All)
- 10:00 AM Break (15 min.)
- 10:15 AM New Items
9. **National S&T Agenda Items Discussion** (D. Flocken)
    - 9.1. MDM-1: S.1.11. Provisions for Sealing (status – voting)
    - 9.2. MDM-2: S.1.7. Minimum Measurement (status – withdrawn)
  10. **Palletized Irregular Shaped Object, Bounding Box Calculation** (S. Henry)
  11. **Test Standards Discussion** (J. Fantozzi)
- 12:00 PM Break for lunch
- 1:30 PM Closing Discussions
12. **Review meeting activities and conclusions** (C. Senneff)
  13. **Define next steps (if needed)** (C. Senneff)
  14. **Next meeting** (C. Senneff)
- 3:30 PM Adjourn

*Note: topic times are approximate and merely included as a rough guideline to aid in maintaining meeting pace; some issues will invariably involve more detailed discussion than others.*

**Introduction and Welcome**

- i. **Introductions and Welcome** (C. Senneff)
- ii. **Reiteration of NTEP MDMD Work Group Mission** (D. Flocken)
- iii. **Sector secretary assignment** (D. Flocken / C. Senneff)
- iv. **Report – 2018 NCWM Interim Meeting** (D. Flocken)

During the NCWM, Interim Meeting in January 2019, the S&T Committee had 2 items dealing with MDMDs. These items and their background information will be discussed in items 9.1. and 9.2. of this agenda.

I would ask that all comments be deferred until we get those items

- v. **Report – Recent Measurement Canada Type Evaluation Activity** (P. Turgeon)
- vi. **Report – Recent NTEP MDMD Type Evaluation Activity** (T. Buck)

**Carry Over Items**

**1. Review meeting summary from May 2018 meeting**

A copy of the May 2018 Meeting Summary can be downloaded at [www.ncwm.net/ntep/sectors/mdmd/archive](http://www.ncwm.net/ntep/sectors/mdmd/archive). Please bring a copy of the summary with you to the meeting.

**2. Review changes to NIST, Handbook 44, MDMD code since last meeting**

During the NCWM, Annual Meeting in July 2018, no new items were adopted.

**3. Review changes to Measurement Canada MDMD Code, and Terms and Conditions Documents**

Discussion, as needed, regarding any changes to the Canadian MDMD Code since the Work Group’s May 2018 meeting.

**4. Review OIML Activity Related to R129 CD2**

Discussion, as needed, regarding activity of the OIML Committee responsible for revising the International Recommendation 129 for MDMD instruments

**5. Review changes to 2019 edition of NCWM, Publication 14, MDMD Checklist**

The following change(s), as agreed to during the May 2018 MDMD Work Group meeting, and approved by the NTEP Committee was made to the MDMD Checklist in the 2019 edition of Publication 14:

Section	Amendment	Pages
1.	Updated “Marking Requirements” to include Note: 9 and reformat to match the table in HB44.	MDMD-6
1.	Revised marking requirement for Minimum and Maximum Dimensions in Table to identify that in multi-interval operation, the marking requirement applies to each range in each axis.	MDMD-6

3.10.	Added examples of units of measures	MDMD-11
8.6.	Added new sentence defining limitation of tare value on multi-Interval operation.	MDMD-14
8.7.	Added new sentence defining the mathematical agreement of calculation of Net Values, including examples.	MDMD-14
16.	Replace the words “length”, “width”, and “height” with the word “measurement” in step 10 thru 15 of the test procedures.	MDMD-20

**6. In-motion Forklift based Pallet Dimensioning**

Recently, several NTEP Certificates of Conformance have been issued to devices designed to measure palletized freight while being transported (in-motion) on a forklift truck. The Ohio Lab, in conjunction with the device manufacturer, has created a series of tests used during the evaluation.

At the 2018 MDMD Meeting, a sub-workgroup was formed to focus on the topic. Mr. Bruce Budinger (Northrup Grumman/AOA Xinetics) volunteered to Chair the group. J. An update on the progress of the sub-workgroup will be provided by Mr. Budinger.

**7. Recommendation to add Tolerance information to Pub 14**

This Carryover item originated from a discussion of Item 7 Publication 14, MDMD Checklist (Recommendation 4) of the 2018 MDMD Work Group agenda. See Item 7, Recommendation 4 the 2018 MDMD Meeting summary for additional details.

During the May 2018 MDMD Work Group (WG) Meeting it was determined that information related to the tolerance value, and how this value should be applied to the various operation modes, should be included in to the MDMD Checklist and Test Procedures of Publication 14.

During the meeting, it was agreed to that the existing sub work group would stay intact and develop a recommendation for the WG member to consider adopting at the May 2019 WG Meeting.

The following is the sub work groups recommendation.

**XX. Device Tolerances**

**Code References: T.2. and T.3.**

XX.1. The acceptance and maintenance tolerance values shall be  $\pm 1$  division.

XX.1.1. For type evaluations, the tolerance values apply to tests within the influence factor limits of temperature and power supply voltage specified in T.5.1. Temperature and T.5.2. Power Supply Voltage.

XX.1.2. For devices that measure to a different division value in at least one dimensioning axes and all axes are single range, the tolerance values shall be based on the value of the division of the axis in use.

XX.1.3. When there exist two or more partial measuring ranges (or segments) specified for any of the “dimensioning” axes (length (x), width (y), or height (z)) and the division values corresponding to those partial measuring ranges (or segments) within the same “dimensioning” axis differ, the tolerance values shall be based on the value of the division of the range in use.

The sub work group also recommends that this be numbered paragraph “12.” And all remaining paragraphs be renumbered.

## **8. Misc. Items for General Discussion**

8.1. Definition of measurement area or work area “Pub 14, section D.

8.2. Testing of shrink wrap? Latest request for are new cert. Shrink wrap can add to the overall dimension, but is difficult to measure, if covering the bottom of a pallet.

8.3. Measuring pallets while in motion or static with forklift within the measuring area. Test objects should include a pallet with fork channels and the height of that pallet should be measured from the floor and inclusive of the bottom of the pallet. This is also a test request for our new stop n go system, that includes the forklift in the measuring area...

## **NEW ITEMS**

### **9. National S&T Committee Agenda Item Discussion**

#### **9.1. MDM-1: S.1.11. Provisions for Sealing**

A few years ago, the Grain Analyzer Sector submitted a proposal dealing with the use of removable digital storage devices; specifically, how to address the sealing of these storage devices since they contain metrologically significant information used in the calculation of a payment for grain and other commodities. During the first opening hearing on this item, it was decided that while the conference members could not agree on the value of the proposal, NIST, OWM felt that the item had merit and felt that any proposed wording change should be considered for other device type. NIST, OWM agreed to take ownership in the item for the intend of developing wording for each device type. Following is the proposed wording for the MDMD Code in NIST Handbook 44.

Following is an extract for the National S&T Committee report.

This item has a voting status.

Any discussion?

**B3: MDM-1 V S.1.11. Provision for Sealing.**

**Item Under Consideration:**

Modify Multiple Dimension Measuring Devices Code as follows:

**S.1.11. Provision for Sealing. - For devices and systems in which the configuration or calibration parameters can be changed by use of a removable digital storage device, security shall be provided for those parameters as specified in G-S.8.2. For parameters adjusted using other means, the following applies:**

- (a) **A** The device or system shall be designed with provision(s) for applying a security seal that must be broken, or for using other approved means of providing security (e.g., data change audit trail available at the time of inspection), before any change that detrimentally affects the metrological integrity ~~of the device~~ can be made to any measuring element.
- (b) Audit trails shall use the format set forth in Table S.1.11. Categories of Devices and Methods of Sealing for Multiple Dimension Measuring Systems.

**9.2. MDM-2: S.1.7 Minimum Measurement**

Last November the National S&T Committee received a proposal from Parcel Tools, an Australia based manufacturer of MDMD's, proposing that the 12 d minimum requirement be removed for devices referred to as "mobile tape based MDMD devices". The proposal went through several regional W&M association meetings and found little support. At the NCWM Interim Meeting in January 2019, the S&T Committee hear opposition for the item from every speaker except one. The individual felt that the idea had merit and commented that the 12 d minimum requirement should be reviewed for all MDMDs. The individual also commented that he would support the withdrawn of the item but felt it should be discussed during the 2019 MDMD Work Group Meeting. (The S&T Committee agreed to withdraw the item from their agenda.)

Following is an extract for the National S&T Committee report.

Any discussion?

**MDM-2 W S.1.7. Minimum Measurement**

**Source:**

Parceltool P/L (2019)

**Purpose:**

Accept mobile tape based MDMD devices from the 12D minimum measurement.

**Item Under Consideration:**

Amend NIST Handbook 44 Multiple Dimension Measuring Devices Code as follows:

**S.1.7. Minimum Measurement.** – Except for entries of tare and mobile tape based MDMD devices, the minimum measurement by a device is 12 d. The manufacturer may specify a longer minimum measurement. For multi-interval devices, this applies only to the first measuring range (or segment) of each measurement axis (length, width, and height).

**10. Palletized Irregular Shaped Object, Bounding Box Calculation**

A question has been raised regarding the proper way to determine the size of a bounding box for a palletized irregular shaped object, based on current specifications and test notes found in NIST Handbook 44.

The requirements to measure irregular shapes currently apply for any and all loose or palletized objects and are repeated below:

**Handbook 44:**

**S.1.5.2. Devices Capable of Measuring Irregularly-Shaped Objects.** – For devices capable of measuring irregularly shaped objects, the value of the division size (d) shall be the same for the length axis (x) and the width axis (y) and may be different for the height axis (z), provided that electronic rotation of the object to determine the smallest hexahedron is calculated in only a two-dimension horizontal plane, retaining the stable side plane as the bottom of the hexahedron.

**N.1.2.1. Irregularly-Shaped Test Object Placement.** – Irregularly-shaped test objects must be measured while placed on a stable side. The rotation of the object to determine the smallest hexahedron should be calculated in a two-dimensional plane, retaining the stable side plane as the bottom of the hexahedron.

**Publication 14:**

**Code Reference: S.1.5.2.**

7.5. The devices capable of measuring irregularly shaped objects, the value of division size (d) shall be the same for the length axis (x) and the width and the width axis (y) and may be different for the height axis (z), provided that electronic rotation of the object to determine the smallest hexahedron is calculated in only a two-dimension horizontal plane, retaining the stable side plane as the bottom of the hexahedron.

The drawing shown in Figure 1 indicates an irregular shaped object on a pallet with the dimensions determined by using the current specifications and test notes in NIST Handbook 44 and NCWM Publication 14.

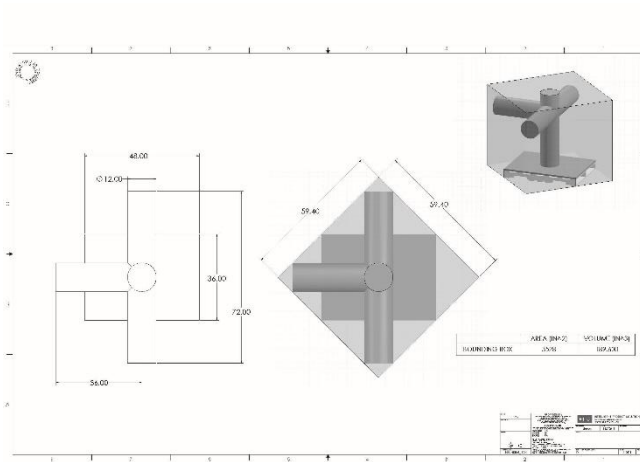


Figure 1

The drawing shown in Figure 2 indicates an irregular shaped object on a pallet as it would be placed on the truck. In this example the dimension would be of the object based only on its most stable side down and not the electronic rotation of the object to determine the smallest hexahedron is calculated in only a two-dimension horizontal plane, retaining the stable side plane as the bottom of the hexahedron.

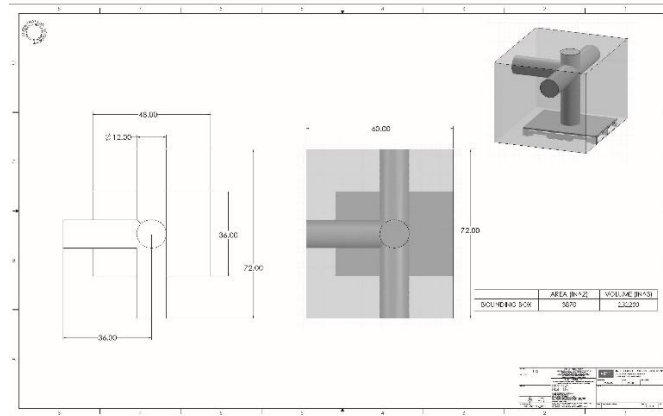


Figure 2

One needs to question if the rotations requirements for a palletized irregular shaped objects is the correct or only requirements that should be permitted. Should the specifications be changed to allow systems that can measure irregular shaped objects to report the smallest hexahedron dimension as well as the loading dimensions. In this situation, the customer can choose the dimensions for proper use case and charges.

Discussion:

#### 11. Test Standards Discussion

The following topic for discussion was submitted by Jeff Fantozzi, Deputy Weights and Measures Inspector, Erie County, Ohio.

My concerns are based on proper testing of MDMD devices and having the proper standards to do so. A problem is with the cost of standards, will a registered service company or the owner of the device be required to have certified standards for testing purposes. I believe Weights and Measures Officials were told they could not test or be allowed in certain establishments. My duties included investigating complaints and I would like to know what if that arises from these devices and the workgroups recommendation on resolving.

Could an Ohio Weights and Measures Inspector have their own standards professionally made so that they could be certified and recognized by N.I.S.T. and the ODA?

#### CLOSING DISCUSSION

#### 12. Review meeting activities and conclusions

**13. Define next steps (if needed)**

**14. Next meeting**

The work group is encouraged to recommend a date and location for the next work group meeting. The recommendation will be presented to the NTEP Committee for review and approval. The work group should maintain, at a minimum, a yearly meeting schedule.

**Adjourn**