

# National Type Evaluation Program (NTEP)

## Software Sector Meeting Summary

August 17<sup>th</sup> – 18<sup>th</sup>, 2022 / Milwaukee, WI  
In conjunction with the NTEP Weighing Sector meeting

### INTRODUCTION

The charge of the National Type Evaluation Program (NTEP) Software Sector is important in providing appropriate type evaluation criteria for software-based weighing or measuring device based on specifications, tolerances and technical requirements of *NIST Handbook 44* Section 1.10 General Code, Section 2 for weighing devices, Section 3 for liquid and vapor measuring devices, and Section 5 for taximeters, grain analyzers, and multiple dimension measuring devices. The sector's recommendations are presented to the NTEP Committee each January for approval and inclusion in *NCWM Publication 14 Technical Policy, Checklists, and Test Procedures* for national type evaluation.

The sector is also called upon occasionally for technical expertise in addressing difficult *NIST Handbook 44* issues on the agenda of the National Conference on Weights and Measures (NCWM) Specifications and Tolerances (S&T) Committee. Sector membership includes industry, NTEP laboratory representatives, technical advisors and the NTEP Administrator. Meetings are held annually, or as needed and are open to all NCWM members and other registered parties.

Suggested revisions are shown in **bold face print** by ~~striking out~~ information to be deleted and underlining information to be added. Requirements that are proposed to be non-retroactive are printed in *bold faced italics*.

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**Table B**  
**Glossary of Acronyms and Terms**

<b>Acronym</b>	<b>Term</b>	<b>Acronym</b>	<b>Term</b>
BIML	International Bureau of Legal Metrology	OIML	International Organization of Legal Metrology
CC	Certificate of Conformance	OWM	Office of Weights and Measures
EPO	Examination Procedure Outline	PDC	Professional Development Committee
NCWM	National Conference on Weights and Measures	S&T	Specifications and Tolerances Committee
NIST	National Institute of Standards and Technology	SMA	Scale Manufacturers Association
NTEP	National Type Evaluation Program	WELMEC	European Cooperation in Legal Metrology

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

## **WELCOME**

Since the Software Sector meeting is a joint meeting with the MDMD work group, some time will be allocated to meet and greet both new and familiar faces.

## **STATUS REPORTS – RELATED NCWM AND INTERNATIONAL ACTIVITY**

Attendees of the 2022 NCWM Interim and Annual Meeting are asked to share any relevant comments or discussion that took place during the open hearings or NCWM Standards and Tolerances (S&T) committee working sessions. Results related to items on our Agenda were of particular focus.

Dr. Katya Delak, NIST Office of Weights and Measures (OWM), will provide a synopsis of international activity that relates to the work of the sector. (See appendix B)

## **JOINT SESSION PROGRESS REPORT, ACTIVE ITEMS OF MUTUAL INTEREST**

This is the second joint meeting of these groups. To make sure we make the most of the time a quick review of the agenda items from both Sectors will be held to identify those that require collaboration, so all participants have a solid foundation for discussion. As part of this review, items of importance or interest should be allocated more time during the joint session day.

## CARRY-OVER ITEMS

### 1. Software Identification / Markings

**Source:**

NTEP Software Sector

**Background:**

*See the 2021 Software Sector Meeting Summary for more background on this item.*

The bulk of the work on this item resulted in the final, amended proposal for a modification to G-S.1. being accepted as a Voting item at the 2016 Interim meeting, which was adopted at the 2016 Annual Meeting. The current G-S.1 reflects the Sector-recommended language. The non-retroactive date was 2021, so the current language is applicable to all devices placed into service as of this year.

The item remains on the agenda since there was additional discussion regarding a secondary goal - if we can alter G-S.1.e. sufficiently, we may be able to eliminate G-S.1.1. Darrell Flocken recommended that we begin working on this item prior to 2022 given that it may take some time for others to accept any changes we propose.

G-S.1.1. Location of Marking Information continues to use the terminology “Not-Built-For-Purpose”. We would prefer to reduce the usage of that term and “Built-For-Purpose” (or eliminate them altogether). Those categories continue to blur as time goes by. It was acknowledged that it is always more difficult to alter the general code.

Darrell Flocken reported that NTEP is challenged when they get software running on e.g. a phone or tablet. Developers have sometimes failed to properly display the version number, which makes it difficult for inspectors to view the information. Pub. 14 should indicate that continuously displaying the version number is the most preferred method. HB44 has the requirement, and Pub. 14 is for explaining how to comply.

The group agreed with the interpretation that ‘Continuously displayed’ is intended to mean while in operating mode. The CC has to be permanently marked or continuously displayed. This allows the information for accessing the version number to be within the CC.

Zach Tripoulas asked whether the group thought that the Scale Marking Requirements are congruent with G-S.1. It was pointed out that some of the exceptions noted in G-S.1. are intended to cover applications that can’t comply with the general requirements. One example is 7-segment displays. Refer to G-S.1.d.1.i. and G-S.1.d.1.ii.

Darrell Flocken recommends that we plan a review of the contents of HB44 to verify that it correctly reflects our understanding of the intent. From there, we can clarify matters within Pub. 14, potentially within a checklist. Then we can come back to determine whether any changes are needed to HB44. Jim Pettinato expressed concern that eliminating differences between Not-Built-For-Purpose and Built-For-Purpose will require rewriting rather than minor tweaks to HB44.

The Sector agreed to focus on Pub. 14 for now and revisit this time permitting in 2022.

**Discussion:**

The challenge to remove the separate terminology for Not-Built-For-Purpose and Built-For-Purpose is largely centered on the marking requirements. Jim Pettinato asked for suggestions from anyone for rewording G-S.1. to achieve that goal. We reviewed the definition for Built-For-Purpose and again emphasized the fact that there isn’t an actual definition for Not-Built-For-Purpose in the Handbook.

G-S.1.1. effectively provides exceptions to some of the requirements for hard marking of a limited class (software). Specifically, it provides an exception to the required marking of serial number. If G-S.1. had an exception added, similar to what is now in G-S.1.1., that may forge a path toward accomplishing what we hope to achieve.

While having the terms Built-For-Purpose and Not-Built-For-Purpose isn't ideal, the changes that have already been made, implemented January 2022, have resulted in a huge improvement. Darrell Flocken confirmed that displaying CC numbers is becoming much more common. He sees them frequently in the field (e.g. grocery store scale software).

Jan Konijnenburg suggested changing the title of G-S.1.1. to simply "Location of Marking Information," removing "Not-Built-For-Purpose, Software-Based Devices." Comments indicated that might not reflect the full intent, as there are concerns from inspectors. They don't want stamped plates to go away, especially for devices without displays.

**Conclusion:**

There weren't any substantive objections to tabling this agenda item for later consideration. It seems at this time that the effort to make changes would possibly be contentious and may not provide any significant benefit.

## 2. Identification of Certified Software

**Source:**

NTEP Software Sector

**Background:**

*See the 2021 Software Sector Meeting Summary for more background on this item.*

This item originated as an attempt to answer the question “How does the field inspector know that the software running in the device is the same software evaluated and approved by the lab?”

One possibility is adding a clause to the marking requirements in G-S.1. similar to that below:

**(3) The version or revision identifier shall be directly and inseparably linked to the software itself.**

**Note: The version or revision identifier may consist of more than one part, but at least one part shall be dedicated to the metrologically significant software.**

**[Nonretroactive as of January 1, 202X]**

**(Added 20XX)**

Concern was expressed that this could cause confusion with field inspectors. Software separation isn’t something that’s intended to be useful in the field, it is intended to ease type approval and software maintenance release processing. - This would lend weight to the argument of keeping it in Pub. 14.

If the Sector desires to include this in Pub. 14, we would need to identify all the sections where this concept would need to be added. The Software Sector doesn’t have the authority to add it to the other sectors’ Pub. 14’s. Darrell Flocken reported that a note regarding the concept of software separation has already been added to several of the various Pub. 14 sections.

It was agreed that we would table this item until the 2021 meeting, at which time we will propose the following (updated) wording for the 2022 Pub. 14:

### 3. Additional Marking Requirements- Software

Identification of Certified Software:

The manufacturer must describe and possibly demonstrate how the version or revision identifier is directly and inseparably linked to the metrologically significant software. Where the version revision identifier is comprised of more than one part, the manufacturer shall describe which portion represents the metrological significant software and which does not.

Note: Manufacturers may choose to separate metrologically significant software from non-metrologically significant software. Separation would allow the revision of the non-metrological portion without the need for further evaluation. In addition, non-metrologically significant software may be updated on devices without breaking a seal, if so designed. Separation of software requires that all software modules (programs, subroutines, objects, etc.) that perform metrologically significant functions or that contain metrologically significant data domains form the metrologically significant software part of a measuring instrument (device or sub-assembly). If the separation of the software is not possible or needed, then the software is metrologically significant as a whole.

Now that the Software Sector has its own Pub. 14, the question was raised as to whether the proposed text need to be part of Handbook 44. Darrell Flocken recommended that the Sector continue to move forward this item with the goal of inclusion of the proposed text into HB44. There was general consensus on this approach.

The Sector will prioritize work on the Pub. 14 software section. We will consider revisions to G-S.1.1 as well as the changes pending as described in Agenda Item 1, since the non-retroactive dates will be expiring.

Jim Pettinato and Darrell Flocken both expressed the opinion that these recommendations and information regarding software separation do not constitute a marking requirement. G-S.1. already includes a marking requirement for a version / revision.

This wording has already been incorporated into Pub. 14's for the various sectors, prior to the creation of a Software Pub. 14. Eventually Darrell Flocken will have to go back and convince the other sectors to remove the redundant wordage from their Pub. 14s.

Once the Sector has satisfactorily included language within Pub. 14 to address this point, we will consider this agenda item finalized.

**Discussion:**

During day one of the Weighing / Belt Conveyor Sector meeting, there was discussion of software being updated in the field without evidence of said upgrade being obvious. There was also discussion on the concept of software separation and of the checklist the Software Sector had generated. According to Darrell Flocken, the checklist isn't being used currently. When the checklists were supplied to companies by the labs, as in previous years frequently they weren't returned, or the person filling out the checklist obviously had no idea how to answer the questions.

NTEP is seeing manufacturers submitting individual libraries, along with how they're sealed, indicating that companies are separating the metrologically significant software.

It was mentioned that there is an item on the NTEP Committee's agenda to expand VCAP to a broader class of devices. Currently, it's largely limited to weighing instruments. Darrell Flocken has been investigating the scope and impact of such a change, which could include introducing software reviews for every device under VCAP.

Loren Minnich pointed out that G-S.2. (facilitation of fraud) might be a location for the suggested addition. Jim Pettinato added that G-S.3 or G-S.4 might even pertain. It was pointed out that G-S.2, even as it currently stands, could be sufficient justification for specifying the details of the requirement in Pub 14.

**Conclusion:**

The Sector agreed that if at the conclusion of this meeting, we're satisfied with the pertinent text in Pub 14, we can consider this agenda item finalized.

### 3. Software Protection / Security

**Source:**

NTEP Software Sector

**Background:**

*See the 2021 Software Sector Summary for additional background on this item.*

This agenda item was adopted with the intent to reinforce the need to assure that software provided, delivered or installed in a device meets type. It is somewhat related to the previous items, in that the requirements surrounding providing of a software identifier (firmware, revision, signature) is an integral component in verification, and that to properly monitor software in the field, that software updates are considered a sealable event (see G-S.9).

The Sector continued to develop a proposed checklist for *NCWM Publication 14*. The numbering will still need to be added. This is based roughly on R 76 – 2 checklist and discussions beginning as early as the October 2007 NTEP Software Sector Meeting. The information requested by this checklist is currently voluntary, however, it is recommended that applicants comply with these requests or provide specific information as to why they may not be able to comply. Based on this information, the checklist may be amended to better fit with NTEP's need for information and the applicant's ability to comply.

The California, Maryland and Ohio laboratories agreed to use this check list on one of the next devices they have in the lab and report back to the sector on what the problems may be. In February 2011, the North Carolina laboratory was also given a copy of the check list to try.

The labs using this checklist on a trial basis indicated that there was some confusion as to versions/wording. There may be more than one version in circulation. The version shown in this Summary shall be used henceforth.

The most recent draft of the checklist was distributed with the agenda for the 2022 meeting.

The bulk of the feedback to date has been that the checklist needs some guidance to complete. Once the Sector has satisfactorily included language within Pub. 14 to address this point, we will consider this agenda item finalized.

Jim Pettinato and Darrell Flocken both expressed the opinion that these recommendations and information regarding software separation do not constitute a marking requirement. G-S.1. already includes a marking requirement for a version / revision.

This wording or something similar has already been incorporated into Pub. 14's for the various sectors, prior to the creation of the Software Policy document. Eventually Darrell Flocken will have to go back and convince the other sectors to remove the redundant wordage from their Pub. 14s.

**Discussion:**

Some of the existing Publication 14 sections already have some language included that discusses software separation as an option, and how the software identifier should be tied to the software itself. The only Pub 14 that doesn't have redundant wordage is that of the Measuring Sector. Since we are working on expounding on these concepts and including them in the new Software Policy section of Publication 14, it may become redundant.

**Conclusion:**

Once the Conference adopts the Software Policy document, we can review, modify and/or enhance the requirements for software security within that document moving forward. The language in other Publication 14 sections that will be redundant can be removed at their convenience.

#### 4. NTEP Application for Software and Software-based Devices

**Source:**

NTEP Software Sector

**Background:**

*See the 2021 NTEP Software Sector Meeting Summary for additional history on this agenda item.*

The purpose of initiating this item was to identify issues, requirements and processes for type approving device applications, specifically for not-built-for-purpose software since it is now explicitly allowed. It was suggested that it may be useful to the labs to devise a separate submission form for software for these applications. What gets submitted? What requirements and mechanisms for submission should be available? Validation in the laboratories - all required subsystems shall be included to be able to simulate the system as installed.

Historically, requirements for software-only applications haven't been as high as requirements for software applications that include hardware. The number of software-only applications has increased dramatically over the last few years.

Darrell Flocken asked the NTEP lab evaluators in attendance what they need from the Software Sector to help them interpret the documentation they will receive from the manufacturers in response to this requirement.

At the 2021 meeting it was noted that in practice, there might not be just one application. Instead there might be device-specific applications, e.g. a scale software application. Instead of multiple new applications to address these related packages, perhaps it could be handled as a sub-section added to an existing application. There's a meeting coming up to address the direction of applications which will probably affect matters. It was decided by the Sector to await the outcome of the upcoming NTEP meeting and progress accordingly. The assumption is that the proposed language will be part of the Software Policy document.

**Discussion:**

There was discussion regarding methods of sealing, how field inspectors recognize software changes, as well as what requires reevaluation by NTEP. Feedback from the field is that there is interest in removing the acceptance of the "or higher" terminology from NTEP policy. The pushback on that is the cost, of course. There's also the issue that it typically results in delays in getting critical software updates to the field. Darrell Flocken said that a software bug fix doesn't necessarily require reevaluation; he used an example of fixing "keyboard tare" in a system that has a bug.

Darrell Flocken says that he needs a specific software application that identifies the critical parameters. Then he can work on the NTEP policy, and add options for cheaper modifications of the certificate pertaining to software upgrades. Currently the Grain Analyzer Sector has both Phase 1 (new equipment) and Phase 2 (parameter updates) reevaluations. There are also technical and nontechnical changes that have differently priced reevaluations. The latter is primarily a paperwork exercise.

The checklist covers some of this, but a list of particular software-specific sealable parameters would be better. Jim Pettinato pointed out that the list of sealable parameters is currently based upon the device type, not something solely isolated to software. Darrell Flocken receives a lot of questions regarding what is sealable in software.

Vere Miller pointed out that agile methodology and the push to produce software changes quickly makes any delay introduced based upon reevaluation undesirable to manufacturers.

Can VCAP address any of these issues? It analyzes procedures. If software changes meet ISO 9001, that indicates that the processes are consistent. This could become part of the VCAP audit. The next step would be review of the audit trail.



Pub 14 contains the technical policy and the checklist. The technical policy can include the information necessary to determine how to obtain a certificate and maintain it. Darrell Flocken suggested reviewing the Weighing Sector's technical policy as a sample of how to address this issue.

Darrell Flocken showed the Sector an example of the technical policy from Digital Electronic Scales. The very first section after the Amendments is the Technical Policy. Currently our Pub 14 is entitled "Software Technical Policy." It seems we should change our title. In the example they have a section on models to be considered and conformance parameters. It can include what they will look for and how it will be looked for. What will be evaluated? Later it has a description of what the CC will apply to (e.g. all models having x, y, and z). We reviewed a Scale Application. Our application should indicate what hardware needs to be supplied by the manufacturer. It may make a lot of sense to test at the manufacturer's site because all the necessary hardware should be available.

Would a Software Application be an addendum or a separate application? What about a Software Revision Application, assuming there's a lesser fee for it? It seems like the basic application covers the majority of what needs to be addressed, so software could be a new table/addendum supplementing existing applications. The problem with this approach is manufacturers of software-only applications. They tend to be confused when they try to fill out the entire application. We may need to spend some time outside this meeting reviewing existing applications.

**Conclusion:**

Since the NTEP staff has the best understanding of the need, they have taken on the task of developing the draft application for software-specific submissions for type approval. The application for Electronic Cash Registers (either with Scales or Dispensers) seems quite similar to what is needed, so it may be a good starting point.

## 5. Training of Field Inspectors

### Source:

NTEP Software Sector

### Background:

*See the 2021 NTEP Software Sector meeting summary for more background on this item.*

There is a national EPO from NIST Office of W&M, HB112. Darrell Flocken recommended that we approach NIST regarding adding text regarding software. There are not EPO's for every equipment type. Rick said that HB112 is updated every year. Rick said that the most value to the field inspectors would be to identify for them different means that software can be used to manipulate the metrological system. In particular, how can someone attempt to cheat using software? Jim Pettinato suggested that members of the Software Sector download and review HB112, so that we can have a better idea regarding where we might best target additions to the text. It was noted that recommendations for changes to HB112 should go to Tina Butcher.

It was suggested that perhaps a presentation on this subject at the main and regional NCWM meetings might be a good starting point. Jim Pettinato suggested an entry in the NCWM newsletter, targeted to inspectors, would also help. The newsletter is submitted quarterly. Darrell Flocken confirmed that submissions for the next newsletter are due January 15th. A helpful newsletter article could describe how to find the CC for a system that includes software. Brian Duncan volunteered to write a first draft.

There has also been a request for training on the NTEP process. Darrell Flocken has provided a presentation on this subject in the past, but it may be time for a refresher.

NIST does perform regional training for field inspectors. Sometimes they'll bring a subject matter expert along to assist with the training. Tina Butcher listed several training courses that have been given recently. She also said that there have been requests for training schools in conjunction with the regional meetings. They're sometimes also looking for presentations. Unfortunately, the majority of the attendees aren't necessarily field inspectors.

John Roach said that if we trained CA's main trainers, that information could trickle down to the field inspectors. Jeff Gibson said that a similar approach would work with OH.

Jim Pettinato shared an updated training presentation. It was noted that additional examples of certificates with instructions to access the software identifier and audit trail would be welcome. Chris Senneff volunteered to send Darrell Flocken / Jim Pettinato his certificate.

Tina Butcher suggested recording a webinar.

It was noted that any additional information received regarding specific examples of the implementation of features to support field inspection in real-world devices, will be incorporated into the work-in-progress presentation. If possible, we will arrange to have representation at the NTEP lab meeting as well.

### Discussion:

Problems often occur in the field due to the instructions on the CC no longer working. POS's and taxi meters are often particularly problematic. Feedback from the field is that giving manufacturers options isn't the best way to handle this; preferably they should only have one acceptable way to do it – or limit the options to only hard-marking or continuously display. Unfortunately, there are often limitations to what the manufacturers can do, so a one-size-fits-all approach is a problem as well. Jan Konijnenburg pointed out that if the instructions on the CC to access the needed information has changed, then the instrument is no longer in compliance with the certificate.

Jim Pettinato asked for additional volunteers to provide examples of how their CC documents how to access the information a field inspector needs.

**Conclusion:**

Darrell Flocken advised that, given the purview of this sector, we should limit our approach to giving the field inspectors the tools they need to walk up to, for example, a POS system and be able to figure out whether it's running the correct software.

This circles back around to enhancing the training presentation further, e.g. collecting more examples from existing certificates with instructions for viewing version numbers and accessing audit trails, so training can be developed with specific real-world examples.

Eric Wechselberger provided an example during the meeting.

## 6. New Publication 14 Software Technical Policy

### Source:

NTEP Software Sector

### Background:

*See the 2021 NTEP Software Sector meeting summary for additional background.*

For the past several years, the Sector has been working toward completing a new section of Publication 14 entitled NTEP Software Technical Policy, containing the following sections:

1. **DEFINITIONS..... ERROR! BOOKMARK NOT DEFINED.**
  2. **SCOPE..... ERROR! BOOKMARK NOT DEFINED.**
  3. **SUBMISSION OF SOFTWARE ..... ERROR! BOOKMARK NOT DEFINED.**
  4. **MARKINGS..... ERROR! BOOKMARK NOT DEFINED.**
  5. **SOFTWARE IDENTIFICATION ..... ERROR! BOOKMARK NOT DEFINED.**
  6. **SOFTWARE UPDATE SECURITY..... ERROR! BOOKMARK NOT DEFINED.**
  7. **SOFTWARE EVALUATION CHECKLIST ..... ERROR! BOOKMARK NOT DEFINED.**
  8. **NCWM WEBSITE RESOURCES ..... ERROR! BOOKMARK NOT DEFINED.**
- APPENDIX A: CHECKLIST FOR DEVICES WITH SOFTWARE ERROR! BOOKMARK NOT DEFINED.**

See the NTEP Software Sector Technical Policy draft document as circulated with the Agenda for the full content.

Darrell Flocken said that he'll review our Pub. 14 in detail over the next month to identify elements that do not currently have support in HB44. Subsequent to that, Jim Pettinato can work on a draft to address those concerns. Jan Konijnenburg suggested that the Pub. 14 Sections have references to HB44.

It was pointed out that the title of the document should not include the word 'Administrative'. Instead we will use the title 'Software Technical Policy'. The draft document title and header needs to change to Software Technical Policy. We'll edit it offline since the document has some editing issues.

Section 3 requires training, so that the labs all have a common understanding of what is needs. Darrell Flocken isn't certain that the third bullet point may imply that the NTEP evaluators will be reading a flowchart in detail. He thinks the labs might not be ready for that, and the evaluation process doesn't go that deep for now. That doesn't mean that we should remove the bullet point since it's beneficial to have the submitters ensure that they've thought about the issues.

Patrick Tilley asked about remote software upgrades. Darrell Flocken replied that the software upgrade would need to be recorded in the audit trail as an event log entry. Jan Konijnenburg explained the OIML approach used in Europe and how different countries can handle it differently. Ron Peasley also pointed out that it's device-specific in Europe, dependent on risk category.

Teri Gulke will ask her company's marketing if they can provide additional examples of potential icons to use to access the version number.

Jim Pettinato will make the identified edits to the draft Software Technical Policy and circulate to the Sector for comments.

**Discussion:**

The group reviewed the current draft, and decided that the boilerplate text that was copied from the Administrative Policy should be removed from our Pub 14 and replaced by a reference to that document.

When discussing additional content that should be added to our Pub 14, Darrell Flocken suggested we add information regarding what to consider when upgrading software. We can add guidance for sealing methodology, security, and unauthorized modification. We may not need to go into detail on audit trails, for example, since that's already addressed by NIST documentation. We can also discuss facilitation of fraud.

If we're satisfied that we're at about 75% complete, Darrell Flocken will post our draft to the website to obtain feedback.

NIST documentation on audit trails is available, but currently only via CD-ROM. Jim Pettinato thinks Tina Butcher recently provided a training class on audit trails. It would be interesting to learn what materials she used.

For detailed examples to put into Pub 14 Section 6, reference D31 6.2.6.1.

**Conclusion:**

The group allocated the 2<sup>nd</sup> day of the meeting to furthering the content of the draft Pub 14. Software Policy document, with the goal of achieving the progress target of 75% so we can post it for comment.

## 7. Next Meeting

### **Background:**

The sector is on a yearly schedule for NTEP Software Sector Meetings. Now that we've adopted a joint meeting system, the next Sector joint meeting will likely coincide with one of the remaining Sector meetings.

If we continue with our joint meetings, 2023 would be in conjunction with the Measuring Sector.











### **Discussion:**

Since the Measuring Sector hasn't met in 2022 yet, they haven't scheduled where and when it will be in 2023. Darrell Flocken said that it's almost always the second or third week in September. It definitely won't be later. A few other options were discussed but the general consensus seemed to be that the timing of the Measuring Sector meeting would be appropriate and that joint Sector meetings still provide some benefit at this time.

### **Conclusion:**

The Sector decided to request that our 2023 meeting be scheduled in conjunction with the Measuring Sector, location and precise date TBD.

**Appendix A – Acceptable Menu Text/Icons for Weights Measures information**

<i>Permitted examples</i>	<i>Menu Text</i>	<i>Permitted Icon shape examples</i>	<i>Essential characteristics</i>
Information Info		  	<p>Top level menu text or icon</p> <p>Icon text is a lower case “i” with block serifs</p> <p>Text color may be light or dark but must contrast with the background color</p> <p>Icon may have a circular border</p> <p>Activation of this menu text/icon may invoke a second level menu text/icon that recalls metrology information.</p>
Help ?		 	<p>Top level menu text or icon</p> <p>Icon text is a question mark</p> <p>Text color may be light or dark but must contrast with the background color</p> <p>Icon may have a circular border</p> <p>Activation of this menu text/icon may invoke a second level menu text/icon that recalls metrology information.</p>
Metrology Metrological Information		 	<p>Top or second level menu text or icon</p> <p>Icon text is an upper case “M”</p> <p>Text color may be light or dark but must contrast with the background color</p> <p>Icon may have a circular, rectangular, or rounded rectangle border.</p> <p>If present, the activation of this menu text/icon must recall at a minimum the NTEP CC number.</p>
NTEP Data N.T.E.P. Certificate			<p>This one is debatable – what if the certificate is revoked?</p> <p>Does NTEP grant holders of CCs the right to display the logo on the device, or just in documentation?</p>
Weights & Measures Info		 	

## **Appendix B – NIST WMD Report on International Activity**

### **Status of OIML work on D31 (TC5/SC2/p4)**

The second committee draft (2CD) of D31 has been issued for review. The comments period closes on October 25<sup>th</sup>. This follows the 2<sup>nd</sup> project group meeting, which took place in February.

The project (p4) is aimed at introducing sections that cover remote verification, the cases where artificial intelligence/machine learning or dynamic modules may be used by the software, and a new set of terms related to measurement-related data and metadata.

The new language on remote verification provides guidelines and cases where legal metrology software can be verified through a secure remote connection. This includes, for example, checking the identity, integrity and correctness of the software, and the examination of audit trails.

With regard to machine learning, the document makes allowances for changing of parameters used in metrologically-relevant software, but dictates that there should be some indication that the software uses “dynamic modules”, and that the measurement result was derived using these dynamic modules.

New terms introduced related to measurement data and metadata are included in an informative annex. While most of the terms are not used in the document, they are intended to clarify to readers the different associations between data used and collected during the measurement process and in the generation of the measurement result.

### **Digital NIST Project**

NIST has kicked off a project aimed at the digitalization of calibration certificates and reference material certificates, such that they would be available in machine-readable formats (XML) to directly transfer calibration information to instruments. Human readable certificates would also be generated from these files.

The project is in the early stages and follows efforts in Europe that have already been initiated. A workshop is scheduled for September 28-29<sup>th</sup>. The first day will consist of plenary talks introducing the effort conceptually and setting the stage for working sessions the following day. The project needs stakeholder participation to succeed. Registration will be announced in the next few weeks, and interested parties are invited to attend.

### **OIML Digitalization Task Group**

The OIML has initiated a Digitalization Task Group, which will aim at addressing the legal metrology aspects of digitalization. The vision of the project includes:

- Machine-readable certificates and reports;
- Machine-readable information that would also be available to interconnected devices relevant to the full range of activities relevant to quality infrastructure, including standardization, calibration, certification, market surveillance, accreditation, regulation;
- Common SI terminologies upon which interoperability is based;
- Use of digital twins for remote assessment of devices;
- Continuous quality and conformity assessment checks.

Early work may involve the development of a common understanding of topics and terms, outlining the role of metrology in digital transformation. The work will also be informed by ongoing work on smart standards taking place in IEC SG12.

Note that the IMEKO TC6 M4D Conference will take place 19-21 September. This conference will include a special session on the work of the OIML Digitalization Task Group.



OIML Document D31:

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