USNWG on Taximeters

July 23, 2015

Philadelphia, PA.

Draft Meeting Summary

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# Carry-over Items

## Proposal to amend existing requirement S.1.2. “Advancement of Indicating Elements”

This proposal was drafted primarily to amend the existing requirement S.1.2. so that it would include the entry of a flat rate as a means to advance the indications on a taximeter. The initial recommended changes are as follows.

**S.1.2. Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the **fare charges displayed on the** primary indicating and recording elements shall be susceptible of advancement only by:

1. the movement of the vehicle;
2. by the time mechanism**;**
3. **a combination of both a) and b)\*; or**
4. **the entry of a monetary amount associated with a flat rate or negotiated rate where permitted.**

**Advancement of the indications for charges, other than fare may occur through manual or automatic means.**

**\* The advancement of fare may occur by either the movement of the vehicle or by the time mechanism but shall not occur by both of these means operating simultaneously (see also S.4. Interference).**

(Amended 1988, **and 201X**)

**Background:**

The proposed amendments drafted for paragraph S.1.2. were developed by the USNWG to account for indications of passenger charges that are displayed on the taximeter primary indicating element however, are not based on a measured distance or time elapsed. Instead, these charges are based on a fixed monetary amount. The use of fixed charges (flat rates) is often found in jurisdictions that use this type of charge for frequently traveled routes such as between hotels, business districts, airports, etc.

This proposal was submitted to the NCWM in August 2014 and was subsequently reviewed by all four regional weights and measures associations in the fall of 2014. During the NCWM Interim meeting in January 2015, the proposal was assigned a voting status for the NCWM’s 2015 Annual Meeting.

Following the NCWM Interim meeting, the proposal was reviewed again by the NEWMA during its May 2015 annual meeting. Several comments were provided at that meeting in opposition of this proposal. Reasons given for the opposition of this proposal included the following.

* Because flat rates are not determined through a calculation based on distance/time, flat rates should not be regulated under the HB44 Taximeters Code. Instead, a flat rate should be considered as a fixed charge that is associated with the measuring device only because it is displayed on the primary indicating element.
* The existing requirement; S.2. states that fare charges must be based on distance traveled or time elapsed (or a combination of these two elements). By adhering to the definition of “fare,” it may be considered as improper to define a flat rate as a fare charge. The definition for “fare” as found in HB44 Appendix D is shown below:

**fare.** **–** That portion of the charge for the hire of a vehicle that is automatically calculated by a taximeter through the operation of the distance and/or time mechanism.

As was done with the proposal listed in the previous agenda item, prior to the May 26, 2015 meeting of the USNWG, the NIST Technical Advisor developed a revised version of the initial proposal to address the concerns heard at the NEWMA meeting. During the USNWG’s May 2015 meeting, the USNWG members agreed that additional work is needed on this proposal.

Following the May 26, 2015 USNWG meeting, the NIST Technical Advisor incorporated the comments from the USNWG and developed another revised version of the proposal. This draft was then presented to USNWG members via email wherein they were asked to review these latest changes and respond with their comments. Those revisions are as follows.

**S.1.2.   Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the **fare charges displayed on the** primary indicating and recording elements shall be susceptible of advancement only by the movement of the vehicle **or** by the time mechanism.

**S.1.2.1.   Extras Charges. – Extras charges may also be indicated on the primary indicating element when properly identified as extras charges.  These extras charges may advance through manual or automatic means and may not be dependent on the movement of the vehicle or the time mechanism.**

**(Added 201X)**

**S.1.2.2    Flat Rate Charges. – Monetary values representing fixed rates that are established for transportation services along frequently traveled routes (e.g., between airports and hotel districts) may be displayed on the primary indicating element as passenger charges.  The advancement of indications for flat rate charges are not dependent on the movement of the vehicle or the time mechanism.**

1. **~~the movement of the vehicle;~~**
2. **~~by the time mechanism;~~**
3. **~~a combination of both a) and b\*).; or~~**
4. **~~the entry of a monetary amount associated with a flat rate or negotiated rate where permitted.~~**

**(Added 201X)**

**~~Where permitted however, passenger charges based on a flat rate shall also be displayed as an indication of fare on the taximeter.~~**

**~~Advancement of the indications for charges, other than fare may occur through manual or automatic means.~~**

**(Amended 201X)**

The email responses that were received from the USNWG regarding this version of the proposal were not supportive of these latest changes. All of the USNWG responding to these latest changes recommended alternative approaches that indicated there is no consensus among the work group on how the regulation of flat rates should be addressed.

Based on the divergent opinions within the group, the USNWG members were again contacted via email and asked for recommendations on what should be done regarding the submission of this proposal for consideration by the NCWM. The members responded that they would prefer to ask that the status of this proposal be changed from “voting” to “informational” on the NCWM’s Annual meeting agenda. This would allow for the further development of the proposal prior to it being submitted for voting in the future.

Following the review of this proposal at the May 2015 USNWG meeting and the subsequent exchange of emails where members were polled to determine whether the work group supported the post-meeting additional changes, another recommendation was made that suggested that the ability of a taximeter to continue to accrue charges for a trip after the charges had been totalized and a receipt issued should be addressed by the work group.

Following the May 2015 meeting, Mr. John Roach forwarded a recommendation to the NIST Technical Advisor for the USNWG suggesting additional changes to S.1.2. Mr. Roach reported that during type evaluation, a taximeter system being evaluated was found to be able to continue to accrue charges and then to add those charges to the total cost of the service even after a receipt had been printed. It was believed that this would potentially allow a new transaction to begin before the taximeter had been cleared of data from the previous transaction. This could potentially create an opportunity to fraudulently use the device and for that reason Mr. Roach suggested that the USNWG consider developing an amendment to HB44 requirements prohibit a taximeter system from totaling charges after a transaction has been concluded. Since this experience also involved the advancement of indications, this information has been included as part of this item.

**Discussion:**

Following the July 2015 National Conference on Weights and Measures (NCWM) meeting in Philadelphia, PA, a face-to-face meeting of the USNWG on Taximeters was convened. During that USNWG meeting conducted on July 23, 2015, the work group generally agreed on the need for further revisions to the proposed changes presented in this item.

One aspect of the original proposal that the group believed to be in need of improvement was the use of the word “fare” in association with the application of flat rates. An existing definition for “fare” in HB44 Appendix D indicates that fare is “that portion of the charge for the hire of a vehicle that is automatically calculated by a taximeter through the operation of the distance and/or time mechanism.” Some work group members considered this definition to be in conflict with the association of the term fare with a flat rate that does not increment through the operation of the distance and/or time mechanism.

Mr. Jesse Davis explained the operation of a taximeter, when a flat rate is applied during the July 2015 meeting. According to Mr. Davis, the device operates as normal in that an initial interval (or drop) will occur and will result in a monetary amount (fare) displayed on the taximeter. As the trip continues and the taximeter continues to register, the initial interval is followed by a progression of subsequent intervals that would normally add an amount to the initial amount with the occurrence of each subsequent interval. When a flat rate is applied however, once the amount is indicated for an initial interval, the totaling of monetary amounts for subsequent intervals occurring during the trip will be calculated using the distance or time measurement multiplied by a factor of zero. The result is that no additional charges accumulate and the total fare is based solely upon the initial interval charge.

With the explanation that the use of a flat or negotiated rate would not result in an advancement of fare indications beyond the initial amount displayed when a flat rate is applied, the USNWG agreed that the entry of a flat or negotiated rate should not be addressed in HB44 as a rationale for the advancement of indicating elements.

The work group did agree however, that any charges based upon a flat or negotiated rate (where these types of rates are permitted) should be displayed on the primary indicating/recording elements. Most members supported the notion that, because a flat rate would not be considered as a means to determine fare charges based on time and/or distance, the use of this type of rate should be addressed as either a note or an exemption within the HB44 S.1.2. “Advancement of Indicating Elements” requirement.

The work group also considered the information provided by Mr. Roach regarding his experience where indications of charges displayed by a taximeter system continued to advance after a receipt was printed. The group generally agreed that the generation of a receipt by a taximeter or taximeter system would indicate that the transaction has concluded and that no further advancement of indications should occur beyond that point.

The following draft was developed by the participants of the July 2015 meeting. This draft reverts to the existing language found in S.1.2. but adds a note that specifies that indications (of fare amounts) may “advance” with a zero time and zero distance value.

**S.1.2. Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the primary indicating and recording elements shall be susceptible of advancement only by the movement of the vehicle or by the time mechanism.

**Note: Where permitted, indications may advance with a zero time and zero distance value.** (Amended 1988 **and 20XX**)

**Conclusion:**

While the revised draft (above) was supported by some in the July 2015 meeting, there were other USNWG members who expressed concerns that this requirement would not be easily understood by evaluators and that further clarification is needed for the note that would be added in this draft.

Additionally, this latest draft neglected to address the report of a taximeter system’s (during type evaluation) ability to accrue charges and to add those charges to the total cost of the service after a receipt had been printed.

The work group was unable to agree on a final version within the time constraints of the meeting and this item will be added to the agenda of the USNWG next meeting for additional development.

## Proposal to amend existing requirement UR.1. Inflation of Vehicle Tires

A proposal was developed in August 2011 to amend paragraph UR.1. Inflation of Vehicle Tires in the HB44 Taximeters Code as follows.

**UR.1. Inflation of Vehicle Tires.** – The operational tire pressure of passenger vehicles and truck tires shall be posted in the vehicle and shall be maintained at the posted pressure. **The required tire size shall also be posted in the vehicle.**

(Amended 1977 **and 20XX**)

**Background:**

This proposed change would amend the existing requirement; UR.1. Inflation of Vehicle Tires, to state that the tire size for the vehicle (as specified by the vehicle manufacturer) would also be required to be posted in the vehicle. This language would be added to further specify that tire size, in addition to tire pressure is critical to determining a measured distance. Any change to the circumference of the tires would affect the accuracy of the measurement of distance traveled.

Prior to the USNWG’s February 2015 meeting, additional changes to this proposal along with recommended changes to another requirement (N.1.3.2.) in the Taximeters Code that also pertains to vehicle tire pressure were submitted for consideration by the work group. These most recent recommended changes are shown below.

**UR.1. Inflation of Vehicle Tires.** - ~~The operational tire pressure of passenger vehicles and truck tires shall be posted in the vehicle and shall be maintained at the posted pressure.~~**The tire size and cold-tire pressure shall be maintained at the posted manufacturer’s specifications for the vehicle. Posted cold tire pressure may be used to determine operational tire pressure.**

**Amended 201X**

**N.1.3.2. Tire Pressure.** – At the completion of test run or runs, the tires of the vehicle under test shall be checked to determine that the tire pressure is that operating tire pressure ~~posted in the vehicle~~. If not, the tire pressure should be adjusted to the ~~posted~~**vehicle manufacturer’s prescribed operational** tire pressure and further tests may be conducted to determine the **accuracy and performance of the taximeter**. ~~operating characteristics of the odometer.~~

(Amended 1977 **and 201X**)

At the USNWG’s February 2015 meeting there were several aspects of these suggested changes that the work group did not support. One point made at the meeting was that operational-tire pressure is generally not provided by the vehicle manufacturer as an absolut value but will instead be stated as some value (3-4 psi) above the cold-tire pressure. In addition, operational-tire pressure is defined (HB44 Appendix D) as that pressure that is established after a vehicle has been driven a minimum of 5 miles. This can be problematic because most often the testing of a vehicle’s taximeter is performed in less than 5 miles travel distance.

Additionally, some jurisdictions do not require that a vehicle be maintained so that they are equipped with the manufacturer’s recommended tires. To require that only tires recommended by the vehicle manufacturer be installed for use on a taxi may be outside of the taximeter evaluator’s authority.

After the February 2015 meeting, the NIST Technical Advisor incorporated comments made by the USNWG regarding this proposal by revising the proposed changes to UR.1. and N.1.3.2. as follows. This revision was presented to the USNWG during its May 2015 meeting.

**UR.1. Inflation of Vehicle Tires.** – The operational tire pressure of passenger vehicles and truck tires **as determined at the time of an official examination** shall be posted in the vehicle and shall be maintained at the posted pressure.

**Amended 201X**

**N.1.3.2. Tire Pressure.** – At the completion of test run or runs, the tires of the vehicle under test shall be checked to determine that the tire pressure is that operating tire pressure ~~posted in the vehicle~~. If not, the tire pressure should be adjusted to the postedtire pressure and further tests may be conducted to determine the **accuracy and performance of the taximeter**. ~~operating characteristics of the odometer.~~

(Amended 1977 **and 201X**)

Mr. Mike Sikula noted that if a field official was required to accurately measure tire pressure, then a pressure gauge that has been certified by a recognized standards laboratory would need to be used for verification of the tire pressure on the vehicle. A number of members in the work group believed this to be an unnecessary burden and stated that they believed it to be unlikely that most regulatory agencies would agree to such a policy.

Another comment made during the May 2015 USNWG meeting was that it may not be within the scope of the field official’s authority to regulate equipment on a vehicle that is not directly connected with the taximeter. Adhering to this notion would not require that tire pressure and size be strictly regulated but would only suggest that the examiner be aware that these factors can affect test results and should be accounted for when appropriate.

The USNWG generally agreed during the May 2015 meeting that the vehicle must be presented in proper operating condition and with those factors that will influence test results being properly maintained. The work group agreed that the tire pressure and tire size found on the vehicle when the taximeter is certified should be maintained during the operation of the taximeter. There was no consensus at that time on the proposed changes and the USNWG agreed that further consideration of the item is needed.

**Discussion:**

During the meeting of the USNWG in July 2015, many in the work group restated their opposition to the proposed changes based on their belief that any enforcement involving a specified tire size on a vehicle is an overreach of weights and measures authority.

The majority of participants in the meeting agreed that the examination of a vehicle’s taximeter must be performed with the recognition that tire size and tire inflation will have an effect on the performance of the taximeter. The most important consideration however, would be that the examiner would verify that the vehicle’s tire size and inflation are maintained as documented when the taximeter was previously certified. The group agreed that to do this, the tire size and pressure should be posted in the vehicle so that a comparison can be made to the “as-found” tire size and tire pressure during any subsequent testing of the taximeter.

**Conclusion:**

At the July 2015 meeting, the USNWG agreed to support a proposal to amend paragraph UR.1. as shown in the following draft. Along with some minor editorial changes, this proposed change adds references to tire size in addition to tire inflation.

**UR.1. Inflation and size of Vehicle Tires.** – The operational tire pressure **and tire size** ~~of passenger~~ **on the** vehicle ~~and truck tires~~ shall be posted in the vehicle. **Tire pressure and size** shall be maintained as posted.

(Amended 1977 **and 20XX**)

The proposal as shown above will be submitted to the NCWM for consideration by the four regional weights and measures associations in the fall of 2015.

## Proposal to amend existing requirement S.5. Provision for Security Seals

Two separate proposed changes to the existing HB44 Taximeters Code requirement S.5. “Provision for Security Seals” have been reviewed by the USNWG. Only one of those proposals was considered as a possible basis for the development of any recommended changes to S.5. by the USNWG.

**Background:**

The determination of the USNWG to only consider one of the two proposals was made by the work group during its October 2014 meeting. Information regarding the proposed changes to S.5. that were not to be considered further may be found in USNWG meeting summaries from October 2014 and February 2015.

The proposal that the work group agreed to consider and develop includes the addition of a provision to allow remote configuration of a taximeter and for an associated table to define appropriate methods of sealing. This proposed amendment reads as follows.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter. Security may be provided either by:

(a) Affixing **physical** security seals to the taximeter and to all other components required for service operation of a complete installation on a vehicle, so that no adjustments, alterations, or replacements affecting accuracy or indications of the device or the assembly can be made without mutilating the seal or seals; **~~or~~**

(b) Using a combination of security seals described in paragraph (a) and, in the case of a component that may be removed from a vehicle (e.g., slide mounting the taximeter), providing a physical or electronic link between components affecting accuracy or indications of the device to ensure that its performance is not affected and operation is permitted only with those components having the same unique properties**; or**

**(c) For taximeters that are interfaced with enhanced software driven (POS) systems and that are capable of remote configuration, the sealing of calibration and configuration parameters shall be performed through the use of a physical seal that when removed may allow remote configuration. Any changes made after the removal of this physical seal must be recorded in an event logger.**

**(Added 20XX)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

(Amended 1988, **~~and~~** 2000, **and 20XX)**

|  |
| --- |
| ***Table S.5. Categories of Device and Methods of Sealing*** |
| ***Categories of Device*** | ***Methods of Sealing*** |
| ***Category 1:  No remote configuration capability.*** | ***Seal by physical seal or a combination of physical seals and for components that may be removed from the vehicle, a physical or electronic link as described in (b) above.*** |
| ***Category 2:  Remote configuration capability, but access is controlled by physical hardware.******The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode.*** | ***The hardware enabling access for remote communication must be at the device and sealed using a physical seal and two event loggers: one for calibration parameters and one for configuration parameters.*** ***The event loggers are required in the device; they must include event counters (000 to 999), the parameter ID, the date and time of the change, and the new value of the parameter. A printed copy of the information must be available through the device. The event loggers shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required.*** ***(Note: Does not require 1000 changes to be stored for each parameter.)*** |
| ***[Nonretroactive as of January 1, 20XX]*****(Table added 20XX)** |

**[Audit trails shall use the format set forth in Table S.5. Categories of Device and Methods of Sealing]\***

**[\*Nonretroactive as of January 1, 20XX]**

Most working group members recognized the usefulness of the ability to perform remote configuration on taximeters, particularly when larger fleets of vehicles are operated by one company. This feature would allow routine changes to be made (e.g., changes in rates, surcharges, extras) without the need to bring each vehicle to a central location to have the necessary changes performed.

Some members of the workgroup supported electronic means for sealing in place of physical seals. Those members stated their belief that electronic sealing would provide improved security than when using only a physical seal.

During the February 2015 USNWG meeting the work group was presented with a revised draft of an amended S.5. for their review. This revision contained changes to the lead paragraph and subparagraph (c) in the proposal from that version in proposal B and is shown below. Bulleted items (a) and (b) are shown in abbreviated form since there are no substantive changes being recommended to those portions of the existing requirement.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter **and all other components in a taximeter system that are necessary to complete a transaction**. Security may be provided either by:

(a) …; **or**

(b) …**; or**

* 1. **The use of a physical seal that when broken, may permit remote configuration of metrological parameters. Any changes occurring to these parameters through remote configuration after the removal of the physical seal must be recorded in an event logger.**

**(Added 20XX)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

(Amended 1988, **~~and~~**2000, **and 20XX)**

The USNWG’s members participating in the February 2015 meeting recommended additional changes for S.5. “Provision for Security Seals”. Those changes included providing an exemption from the required printing of data (Table S.5.) from event loggers for taximeters that are not connected to a printer. Another recommended change was to require that when a taximeter was placed into a calibration mode that the device not be capable of normal operation.

The proposal was reviewed again by the USNWG during their May 2015 meeting. The work group members were asked to comment on the latest revisions that incorporated comments and suggestions to paragraph S.5. and the associated Table S.5. made by the work group during their two previous meetings. The draft that incorporates those most recent comments is as follows.

**S.5. Provision for Security Seals.** – Adequate provision shall be made to provide security for a taximeter **and all components in a taximeter system necessary to complete a transaction**. Security may be provided either by:

(a) Affixing security seals to the taximeter and to all other components required for service operation of a complete installation on a vehicle, so that no adjustments, alterations, or replacements affecting accuracy or indications of the device or the assembly can be made without mutilating the seal or seals; **~~or~~**

 (b) Using a combination of security seals described in paragraph (a) and, in the case of a component that may be removed from a vehicle (e.g., slide mounting the taximeter), providing a physical or electronic link between components affecting accuracy or indications of the device to ensure that its performance is not affected and operation is permitted only with those components having the same unique properties**; or**

* + 1. **The use of a physical seal that when broken, may permit remote configuration of metrological parameters. Any changes occurring to these parameters through remote configuration after the removal of the physical seal must be recorded in an event logger. Normal operation of the taximeter shall not be possible when placed in a mode that allows remote configuration.**

**(Added 20XX)**

The sealing means shall be such that it is not necessary to disassemble or remove any part of the device or of the vehicle to apply or inspect the seals.

 (Amended 1988, **~~and~~**2000, **and 20XX)**

|  |
| --- |
| ***Table S.5. Categories of Device and Methods of Sealing*** |
| ***Categories of Device*** | ***Methods of Sealing*** |
| ***Category 1:  No remote configuration capability.*** | ***Seal by physical seal or a combination of physical seals and for components that may be removed from the vehicle, a physical or electronic link as described in (b) above.*** |
| ***Category 2:  Remote configuration capability, but access is controlled by physical hardware.******The device shall clearly indicate that it is in the remote configuration mode and record such message if capable of printing in this mode. Normal operation of the device shall not be possible when in the remote configuration mode.*** | ***The hardware enabling access for remote communication must be located at the device and sealed using a physical seal and two event loggers: one for calibration parameters and one for configuration parameters.*** ***The event loggers required in the device must include event counters (000 to 999), the parameter ID for the parameter being changed, the date and time of the change, and the new value of the parameter.*** ***A printed copy of the information must be available through the device. The event loggers shall have a capacity to retain records equal to 10 times the number of sealable parameters in the device, but not more than 1000 records are required.*** ***(Note: Does not require 1000 changes to be stored for each parameter.)*** |
| ***[Nonretroactive as of January 1, 20XX]*****(Table added 20XX)**  |

This further revised draft consisted of the addition of statements that would prohibit normal operation of the device while in the calibration/configuration mode.

A further change was suggested during the May 2015 meeting that would renumber the “Categories of Device” in the associated table. The change suggested that Category 2 be renamed as Category 3 and that this proposal would not recognize a Category 2 device. This recommendation is believed to more closely align this proposal with the sealing requirements found in other HB44 specific device codes.

**Discussion:**

During the July 2015 meeting of the USNWG, some of the participants asked for further explanation of why the work group did not fully support any proposed changes that would allow for a provision to securing a taximeter/system through only electronic means. While some of the work group still expressed concerns over the ability to tamper with the functions or features of a taximeter and for this manipulation to go unnoticed for some period of time, others in the meeting promoted electronic forms of sealing as being more efficient than any physical seal.

Most of the discussion during the July 2015 meeting centered on the fact that many transportation-for-hire systems in operation today involve a software component that presents a challenge for regulators when verifying that the metrological features in a taximeter system are secured. The recognition that software can be manipulated and perhaps go unnoticed for a period of time, and that software will frequently be subject to periodic updates creates significant concern for some of the USNWG members.

The participants in the meeting acknowledged that if electronic sealing means were to be permitted, additional training and hands-on experience for field inspectors would be necessary for field inspectors to become familiar with procedures to verify the security of a system that uses that type of sealing. The members however, generally accepted the notion that sophisticated electronic forms of sealing could be developed and applied in an effective manner that culd most likely provide an acceptable level of security.

Another point made at the July 2015 meeting was that it should be recognized that there is a difference in the level of difficulty in securing a traditional-type of taximeter and the type of transportation-for-hire services that are operating based on a software application (or “app”). The functions of a traditional taximeter are controlled by the electronic components that are typically confined to the device installed in the vehicle. This is in contrast to the other types of systems accessed through software applications where the functions and the calculations associated with a taximeter may occur in a remotely located computer server.

Mr. Jesse Davis pointed out that the work group should also consider that some taximeter systems consist of auxiliary (software-based) equipment that may have significant effects on any transaction associated with the operation of a taximeter. These components may be programmed and/or controlled by third-parties and as such, add another layer of concern regarding the security of a system.

The work group discussed the potential for taximeters to be secured using a means of sealing provided by using a “Category 3” type of sealing. This provision for sealing is permitted for use on other devices currently regulated under HB44. This type of electronic sealing would allow remote configuration of a device but would require that it be equipped with an audit trail that incorporates event counters and an event logger. Some of the USNWG noted that this means of sealing will provide evidence of any changes made to metrological features however, it is questionable how long those changes would affect the operation of a taximeter before they could be detected by the regulatory authority.

A number of related points were made regarding the ability to manage and secure software components in a system that prompted work group members to suggest that there is a need for additional expertise to provide input to the USNWG. It was suggested during the July 2015 meeting that experts in the area of type evaluation and certification of software could be solicited for their assistance to the work group in this area.

**Conclusion:**

After lengthy discussion regarding this item, the USNWG was unable to reach an agreement on any specific changes to the existing HB44 Taximeter Code relating to S.5. Provision for Sealing. Further discussion was tabled due to time constraints and this item will need to be revisited in a future meeting of the USNWG for any resolutions to be achieved.

The NIST Technical Advisor to the USNWG will pursue additional assistance in this matter by contacting resources outside of the USNWG (including the National Type Evaluation Program administration) to solicit advice and recommendations regarding the evaluation of software components associated with taximeter systems.

## Proposal to add new requirements S.1.4.1. Multiple-tariff taximeters, S.1.4.1.1. Manual rate changes, and S.1.4.1.2. Automatic rate changes.

An initial proposal to add three new requirements that would regulate how and when changes are permitted to the rate applied for calculation of a fare was introduced to the USNWG in May 2014. The original proposal is shown in the following draft.

**S.1.4.1. Multiple-tariff Taximeters – All rates in use for taximeters equipped to calculate fares at multiple rates must be included in the statement of rates as provided in UR.3.**

**S.1.4.1.1. Manual Rate Changes – Taximeters equipped with a means for changing the rate applied, that is not protected by a physical or other type of security seal shall be capable of manually applying rate changes of predetermined, flat rates only.**

**S.1.4.1.2. Automatic Rate Changes – Automatic rate changes may not occur between two consecutive drops and are permitted for differentials including:**

1. **trips that exceed a set distance;**
2. **trips that exceed a set time limit;**
3. **day/evening differentials;**
4. **specific days of the week; or**
5. **specific dates (e.g. holidays).**

**When a change in rate allowed under (a) and (b) occurs, the change must be identified and clearly displayed to the customer. Automatic rate changes allowed under (c), (d), and (e) above shall not occur after the meter has been set to register charges and before the meter has been cleared for that transaction (i.e., between fares).**

**(Added 20XX)**

**Background:**

The USNWG considered this proposal again in October 2014 and in February 2015. During those reviews, additional changes were recommended and revised drafts for each of the three proposed new paragraphs were developed.

S.1.4.1. Multiple-tariff Taximeters:

During the February 2015 meeting, the USNWG members agreed that the latest version of the proposed S.1.4.1. Multiple-tariff taximeters would be supported by the work group. This latest draft is as follows.

**S.1.4.1. Multiple-tariff taximeters –** ~~All rates in use for taximeters equipped to calculate fares at multiple rates must be included in the statement of rates as provided in UR.3~~**A taximeter may utilize more than one rate to calculate fares. The rate or rate code that is currently in effect must be displayed on the taximeter.**

This revision deleted language that was identified as wording considered to be more fitting for a user’s requirement while emphasizing the importance of providing the passenger with information used to determine fare charges.

S.1.4.1.1. Manual Rate Changes:

The initial draft of the proposed new S.1.4.1.1. would have not permitted a manual change in the rate selected on a taximeter unless a seal was removed prior to making that selection. The work group did not support that original draft and recommended that an operator should be able to make changes to the rate applied for fare calculation during a trip without breaking any security seal. While this ability could enable the operator to apply an inappropriate rate, this function may be necessary on various occasions such as when a passenger would change their destination to a location outside one particular rate zone to a different area where another rate would be appropriate.

Another concern regarding this draft of the proposal was that the phrase “basis of rate change” was not clearly understood. It was implied that a description for the basis of rate change could require a relatively large display to properly display this type of information. Also a printed receipt would be a more appropriate location for a lengthy description of terms.

During the USNWG’s February 2015 meeting, a second draft of S.1.4.1.1. was presented to the work group. A number of changes suggested by the work group were incorporated into this new draft which was then reviewed during the meeting. The changes in the revised proposal included specifying that within this paragraph, a change in rate was to be interpreted as the selection of a different rate via controls on the taximeter. While this appeared to resolve some problems with interpretation of the paragraph, this draft did not gain the support of the USNWG. Among the problems identified by the group in this draft was that there is a need for consistency in the use of terms such as “rate” and “drop.” The USNWG suggested that this may require the development of new or the amendment of existing definitions for those terms.

During the February 2015 meeting, the NIST Technical Advisor stated that changes based on the work group’s comments would be drafted into the most recent version of S.1.4.1.1. Manual Rate Changes. The revised version of this proposed new paragraph (shown below) will be presented to the work group for their review.

**S.1.4.1.1. Manual Rate Changes – Any rate (or rate code) selected and applied manually through the taximeter or taximeter system for the calculation of a fare shall be displayed on the taximeter and be included on the passenger receipt. Manual changes to the rate selection used in the calculation of a fare shall be identified on the customer’s receipt in appropriate terms or symbols that clearly identify any rate(s) selected.**

S.1.4.1.2. Automatic Rate Changes:

The review of the initial draft of a proposed new S.1.4.1.2. Automatic Rate Changes took place during the USNWG’s October 2014 meeting. The work group generally agreed with the draft at that time but recommended that one additional parameter be added for the justification of an automatic rate change. The additional parameter recommended was for a rate change based on the trip exceeding a threshold of monetary value. In that situation, if the fare charges for an extended trip went beyond that monetary threshold, a change in the rate being applied would occur.

During the February 2015 USNWG meeting, a revision of S.1.4.1.1. was presented to the work group that had been revised by the addition of the parameter for automatic rate change “trips that exceed a set monetary amount for fare charges.” At that time, an additional change was recommended which suggested that some of the reasons listed in the draft as justifications for an automatic change in rate would not necessarily constitute a rate change. The group generally agreed that rates applied for any change due to day/night differentials, specific days of the week, or specific calendar dates will most likely not be assessed as automatic rate changes that are applied during a single trip. Instead these changes would more likely be implemented broadly as either a selection from a menu of rates included on a posted schedule of rates, or be assessed as surcharges or extras charges.

Prior to the July 2015 meeting of the USNWG a revised draft for a new S.1.4.1.2. Automatic Rate Changeswas developed with the work group’s comments incorporated and was offered to the work group for review and comment. This draft is as follows.

**S.1.4.1.2. Automatic Rate Changes – An automatic change to the rate selected for any fare calculation may only occur after the current distance or time interval is completed and before the next interval begins, and shall be permitted for differentials including:**

1. **trips that exceed a set distance;**
2. **trips that exceed a set time limit;**
3. **trips that exceed a set monetary amount for fare charges.**

**Other established rate selections that may be activated automatically and applied based on: day/evening differentials; specific days of the week (e.g., Sundays or weekends); or specific dates (e.g., holidays) shall be activated only at the beginning of a transaction and before any charges begin to accrue.**

**The rate in use for the calculation of fare must be identified and clearly displayed to the customer. Any change in rate must be accompanied by a corresponding change in the customer display that reflects the change in the rate applied and also appear on the passenger’s receipt.**

**Discussion:**

During their meeting in May 2015, the USNWG work group members reached a general agreement that they would support the latest draft revisions of both S.1.4.1. and S.1.4.1.1. as shown above. During the July 2015 meeting however, the work group expressed concerns over this proposal in that this recommendation only lists three parameters to be considered as justification for applying automatic rate changes. Many of the work group questioned whether the rationale for automatic rate changes listed under the proposed S.1.4.1.2. could also be associated with rate changes that would be activated by manual means (i.e., under S.1.4.1.1.).

The discussions during the July 2015 meeting indicated that the members of the USNWG would be more concerned that the passenger be made aware of any rate changes taking place and placed less emphasis on whether those changes occurred by a manual or automatic mechanism. In addition, the work group recognized that an existing requirement already specifies that the current rate in use be indicated (see S.1.5.1.). The group therefore agreed that any proposed statement specifying that the rate in use be clearly displayed (as proposed in the new S.1.4.1.2.) would be considered redundant.

Most in the work group supported the notion of simplifying this proposal to simply state that a taximeter may calculate fare charges using more than a single rate. While the group acknowledged that there is no existing statement to prohibit this, most members supported the addition of a positive statement that would expressly allow the use of more than one rate.

A suggestion to the work group was made that since the USWNG seemed to favor a simplified proposal that simply stated the calculation of any fare using multiple rates is permitted, then such a statement may be more appropriately located under S.2. Basis of Fare Calculation.

**Conclusion:**

During the July 2015 meeting, the work group agreed to abandon the proposed addition of new paragraphs S.1.4.1., S.1.4.1.1., and S.1.4.1.2. and replace those proposed changes with a newly drafted proposal to amend paragraph S.2. as follows.

**S.2. Basis of Fare Calculations.** – A taximeter shall calculate fares only upon the basis of:

(a) distance traveled;

(b) time elapsed; or

(c) a combination of distance traveled and time elapsed.

**A taximeter may utilize more than one rate to calculate the fare during a trip. Any change in the applied rate must occur at the completion of current interval.**

 (Amended 1977 **and 20XX)**

Following general discussion about changes in rates and the justification for different types of rate changes, the USNWG agreed to support a revised version of S.2. as shown above in place of any proposal to add the three originally proposed new paragraphs. This proposal will be forwarded to NCWM for submission to the four regional weights and measures associations.

## Proposal to amend S.1.5. Operating Condition.

The amendment of S.1.5. as presented to the USNWG at its July 2015 meeting consisted of two separate issues that were combined under a single item due to the interrelated subject matter.

The first issue under consideration consists of proposed changes to S.1.5. and is primarily concerned with the visibility of customer information on the taximeter display. Proposed changes would also require that an indication be provided to signal that the time mechanism is operational.

A second issue within this item and that was addressed by the work group was the proposal of a new requirement specifying that a taximeter system cease to operate if any of the components malfunctioned. This new requirement was initially proposed as a sub-paragraph to S.6. “Power Interruption, Electronic Taximeters” however, it was presented as a consideration under this item with the perception that the requirement would be more appropriately located under the heading of “Operating Condition.”

These issues were considered by the USNWG separately as follows.

### Proposal to amend S.1.5.1. General and S.1.5.2. Time not Recording

The changes proposed to amend S.1.5.1. are intended to clarify that the status of the meter (i.e., “vacant,” “hired,” etc.) must be indicated on a primary display. The recommend changes are also intended to address additional information that may be displayed (e.g. advertisements, maps, etc.) should not obscure this required information.

The existing requirement specifies that when the taximeter is registering and calculating fare charges based only on distance, some means must be present that indicates that the charges are not being calculated based on time. An additional change being proposed is that the opposite would also be required, in that when the time mechanism is enabled, a display be provided to indicate that the taximeter is set to operate in that manner (i.e., display of “time recording,” “time on,” etc.).

Those recommended changes are as follows.

**S.1.5. Operating Condition.**

**S.1.5.1. General.** – When a taximeter is cleared **and not registering fare**, the **primary** indication **shall display** “Not Registering,” “Vacant,” or an equivalent expression ~~shall be shown~~. Whenever a taximeter is set to register charges, it shall indicate “Registering,” “Hired,” or an equivalent expression and the rate at which it is set shall be automatically indicated, **and the required display information shall not be obscured** (Rate 1 or Rate A, for example).

(Amended 1988)

**S.1.5.2. Time not Recording.** – When a taximeter is set for fare registration with the time mechanism inoperative, it shall indicate “Time Not Recording” or an equivalent expression.

***A taximeter set for fare registration with the time mechanism operating shall provide a clear display (e.g., “Time Recording”, “Time Mechanism On”) to the passenger indicating the status of the time mechanism.***

***[Nonretroactive as of January 1, 20XX]***

(Amended 1988, **and 20XX**)

**Background:**

At the September 2012 meeting, the USNWG members were asked if the proposed changes for S.1.5.1. could appropriately be applied to a taximeter system (including all displays) or if this requirement should only apply to stand-alone taximeters. The group generally agreed that, as drafted, the proposal would apply only to stand-alone taximeters.

This discussion generated questions about the definition of “primary display” and whether a display intended solely for passenger use such as a passenger information monitor (or PIM) would be considered as a primary display. The USNWG was directed to the definition of primary indicating or recording elements in HB44 Appendix D, and informed that the term “primary display” would be used to identify the display of indications which would be used in the final determination of charges for goods or services. Using that definition, it was presumed that there could be more than one primary display within a taximeter system including the taximeter itself and a PIM.

**S.1.5. Operating Condition.**

**S.1.5.1. General.** – When a taximeter is cleared **and not registering fare**, the **primary** indication **shall display** “Not Registering,” “Vacant,” or an equivalent expression **~~shall be shown~~**. Whenever a taximeter is set to register charges, it shall indicate “Registering,” “Hired,” or an equivalent expression and the rate at which it is set shall be automatically indicated, (Rate 1 or Rate A, for example). **This required display of information shall not be obscured**.

(Amended 1988, **and 201X**)

Also during the September 2012 meeting, the amendment to S.1.5.2. “Time not Recording” was also discussed. The work group was informed that historically, the “time off” button on a taximeter was used to discontinue the advancement of the timing mechanism during instances such as time needed to complete a transaction (payment process at the conclusion of a trip) or stopping to fuel up the vehicle during a trip. This typically allowed the total charges of fare and extras displays to remain visible and on “hold.” On some systems however, when the meter is placed in a vacant or un-hired mode the indications are cleared.

**S.1.5.2. Time not Recording.** – When a taximeter is set for fare registration with the time mechanism inoperative, it shall indicate “Time Not Recording” or an equivalent expression.

***A taximeter set for fare registration with the time mechanism operating shall provide a clear display (e.g., “Time Recording”, “Time Mechanism On”) to the passenger indicating the status of the time mechanism.***

***[Nonretroactive as of January 1, 20XX]***

(Amended 1988, **and 20XX**)

The USNWG was informed at the September 2012 meeting that requiring a taximeter to display additional information regarding the status of the time mechanism would most likely cause an increase in the cost to manufacture the taximeter. This is due to the necessary change in hardware on the device to accommodate the new requirement.

**Discussion:**

At their July 2015 meeting, the USNWG was asked to review this proposal and provide comment on whether the changes recommended are justified considering the potential of a cost increase to produce these devices.

Most members in the USNWG agreed with the perception that there is no need to provide a visual display indicating that the taximeter is in an operational mode. Some reasoned that if the taximeter is not operational, there should be no requirements specifying what will be displayed by the indicating element. The work group also agreed that any statement made to prohibit extraneous information from being displayed and obscuring other information related to the transaction is unnecessary. The members felt that there are other requirements already in the Taximeters Code (e.g., S.1.3., UR.2.). that already address this issue

Mr. Byron Cocoran stated that to require an indication that the status of the time mechanism is enabled would be costly to the manufacturers due to the fact that this would only be accomplished through changes in the hardware components in the taximeter and would not be a simple change in programming of the operational software. Considering this added cost to the production or retrofit of a device, the USNWG generally agreed that this requirement would create an unnecessary burden to the manufacturers.

**Conclusion:**

Based on the questionable benefit resulting from this proposed change and the implication of additional costs in the manufacture of devices that would comply, the work group agreed not to support any of the proposed changes being suggested for either S.1.5.1. or S.1.5.2.

### Proposal to amend S.6. Power Interruption, Electronic Taximeters

While second issue covered under this item appeared on the USNWG’s agenda for their meeting in September 2012, due to time constraints, that item was not discussed. The proposed addition of a new sub-paragraph under S.6. was recommended to address the performance of auxiliary equipment included in a taximeter system following a power loss. This proposed new paragraph would read as follows.

**S.6. Power Interruption, Electronic Taximeters.**

(a) After a power interruption of 3 seconds or less, the fare and extras indications shall return to the previously displayed indications and may be susceptible to advancement without the taximeter being cleared.

(b) After a power interruption exceeding 3 seconds, the fare and extras indications shall return to the previously displayed indications and shall not be susceptible to advancement until the taximeter is cleared.

*After restoration of power following an interruption exceeding 3 seconds, the previously displayed fare shall be displayed for a maximum of 1 minute at which time the fare shall automatically clear and the taximeter shall return to the vacant condition.\**

*[\*Nonretroactive as of January 1, 2002]*

(Added 1988) (Amended 1989, 1990, and 2000)

**S.6.1. Taximeter Systems. – For taximeters that are interfaced with other components in a taximeter system, all components of that system shall be fully functional as designed. The taximeter shall conclude the transaction upon the failure of any of the system components, and may not begin a new transaction before the failure is repaired. A printed record of the transaction taking place at the time of the failure shall be generated and be available to the passenger.**

**(Added 20XX)**

**Background:**

This item was not previously considered by the USNWG and therefore would have appropriately been listed in the July 2015 meeting’s agenda under “New Items.” However, during a review of recommended changes to the HB44 Taximeters Code, the NIST Technical Advisor believed that the initial recommended placement of this proposal (to be numbered as S.6.1. and be located following S.6) was inappropriate and that this paragraph would be more appropriately located under the parent paragraph S.1.5. Operating Condition.

For that reason, the proposed new paragraph; S.6.1. Taximeter Systems, was relocated and presented to the work group as a subparagraph to the existing S.1.5. Operating Condition. Because the existing S.1.5. would become the parent paragraph to this proposed new paragraph, this item was placed in sequence to follow the proposal for changes (as shown above) to paragraph S.1.5.

This relocation would result in the proposed new paragraph initially numbered as S.6.1. being renumbered S.1.5.3. as shown below. This relocation and renumbering is a recommendation to be considered by the USNWG when deciding whether to support the proposed addition of the new paragraph.

**S.1.5.3. Taximeter Systems. – For taximeters that are interfaced with other components in a taximeter system, all components of that system shall be fully functional as designed. The taximeter shall conclude the transaction upon the failure of any of the system components, and may not begin a new transaction before the failure is repaired. A printed record of the transaction taking place at the time of the failure shall be generated and be available to the passenger.**

**(Added 20XX)**

The justification for this proposed change comes from type evaluation personnel that have reported inconsistencies with certain auxiliary equipment that is interfaced with taximeters when power to this equipment is interrupted. It has been shown that during evaluations, when power is interrupted and then restored to the system, not all of indications on those displays within the system will agree.

**Discussion:**

An explanation was provided to the work group for the reason why a proposed change to the existing requirement S.6. was being added to the July 2015 meeting in this sequence. As noted above, the NIST Technical Advisor believed that the proposed new paragraph would be more appropriately located under the parent paragraph S.1.5.

At the July 2015 meeting, the USNWG members questioned the logic and justification in requiring that an entire taximeter system cease to function in response to a malfunction of any one of its components. Most members reasoned that if a malfunction occurred at some point prior to the completion of a trip, the operator would be expected to deliver the passenger to the destination point although the fare will not reflect a full charge for the trip’s completion. If the passenger was transported to their destination while the taximeter is not functioning there would be no verifiable means to calculate the remaining fare charges. Some members raised the question that if any of the components in the system failed mid-trip and the calculation of fare was terminated, would the passenger be forced to leave the taxi at that point?

**Conclusion:**

Based on the discussion and points made during the July 2015 meeting of the USNWG, the work group members agreed not to support the proposal to add a new paragraph S.1.5.3.

## Proposal to amend S.1.7. Extras

The following amendments to subparagraphs of S.1.7. Extras are being recommended to more appropriately address advances in taximeter technology that has replaced mechanical mechanisms with software-based devices. These recommended changes are as follows.

**S.1.7. Extras.** – Extras shall be indicated as a separate item and shall not be included in the fare indication. They shall be identified by the word “Extras” or by an equivalent expression. Values shall be defined by suitable words or monetary signs. Means may be provided to totalize the fare and extras if the totalized amount returns to separate indications of fare and extras within 5 seconds or less.

(Amended 1988)

***S.1.7.1. – Identification of Extra Charges – For extras other than those charges for additional passengers or luggage, these charges shall be identified and provide a clear indication of the nature of the charge. These charges shall be itemized as necessary on the statement of charges as provided for in UR.3. Statement of Rates and also recorded on the passenger’s receipt for the transaction.***

***[Nonretroactive as of January 1, 20XX]***

**(Added 20XX)**

**S.1.7.~~1.~~2. Nonuse of Extras.** – If and when taximeter extras are prohibited by legal authority or are discontinued by a vehicle operator, the extras mechanisms **or function** shall be rendered inoperable or the extras indications shall be **disabled or** effectively obscured by permanent means.

**Background:**

The intent of the proposal to add the new S.1.7.1. “Identification of Extra Charges” is to require identification of specific, itemized extras charges to benefit the passenger’s understanding of charges incurred. While some jurisdictions with simple rate plans may not be affected to a large degree, those with more complex rate plans would be required to provide more detailed information to the passenger.

This proposed change was discussed during the September 2012 USNWG’s meeting. During that meeting, some members expressed concerns that due to the typically small display areas that taximeters are designed with, there would not be any room to display a great deal of information regarding extras charges. It was pointed out however, that this requirement did not specify that the detail of these extras shall be displayed, but that they must only appear on a statement of rates and on the customer’s receipt.

Some members questioned whether taximeters are capable of providing itemized information that could be sent to peripheral equipment (i.e., external printer) and that would appear on a printed receipt. The work group concluded that as long as the taximeter processes that information, the information could then be included as output data from the taximeter and therefore be sent to a printer. Some of the work group did not believe that many (if any at all) taximeters would be capable of providing sufficient detail and itemization for a receipt.

It was noted that the content of the proposed new paragraph S.1.7.1. pertained to the content of a printed receipt and therefore it was suggested that it may be more appropriate to include this requirement under the existing S.1.9. “Recorded Representations.”

Other thoughts expressed during the September 2012 meeting were that it may not be prudent to include any exemptions for specific extras charges (e.g., charges for additional passengers or for the transportation of luggage) as is now included in the proposed draft of a new S.1.7.1. The option would be to simply require all extras charges to be itemized as in the revised draft shown below.

***S.1.7.1. – Identification of Extra Charges* –  *~~For extras other than those charges for additional passengers or luggage, these~~ All extras displayed on a taxi point of sale system or printed on a receipt or transmitted on an electronic version of a receipt shall be itemized and identified and provide a clear indication of the nature of the charge. Those charges for additional passengers or luggage may be excluded from those being required to be itemized or identified.***

***Information such as abbreviations used must be stated and explained on the receipt and on the Statement of Rates. [Nonretroactive as of January 1, 20XX]***

**(Added 20XX)**

**Discussion:**

Considering the proposed changes to S.1.7. during the July 2015 meeting, the members of the USNWG noted that the existing user’s requirement, UR.3. already addresses the identification of rates, extras, and other charges. This existing requirement specifies that the statement of rates be “fully informative, self-explanatory, and readily understandable by the ordinary passenger…”

Most of the work group members stated their belief that the existing UR.3. “Statement of Rates” provides sufficient information and that the proposed changes shown above are unnecessary. This discussion however, led to consideration of the existing specification requirement, S.1.9.(g). that states “additional charges in $ where permitted such as extras, any surcharges, telecommunications charges, and taxes shall be identified and itemized.”

A number of work group members stated that models of taximeters that have received type approval from the National Type Approval Program (NTEP) and that can be found in service at this time are not capable of generating printed receipts with detailed itemization of charges such as extras. It was also pointed out however, that taximeter systems that include a component such as a “mobile data terminal” (MDT) would be capable of generating an itemized printed receipt as is now required by S.1.9. “Recorded Representations.” Those USNWG members recognizing this suggested that the work group review the existing S.1.9. to determine if any changes could be developed to address this situation and to mitigate the existing problem of non-compliance with stand-alone taximeters.

The work group also discussed the effect of the proposed changes to the existing requirement “Nonuse of Extras” now numbered as S.1.7.1. Acknowledging that these changes were suggested to recognize the evolution of taximeters from mechanical based devices to electronic based devices/systems, most participants of the meeting stated that there was little if any benefit derived from the recommended changes.

**Conclusion:**

At their July 2015 meeting, the USNWG did not support the recommended addition of a new S.1.7.1. “Identification of Extra charges” or proposed changes to the existing S.1.7.1. “Nonuse of Extras.” The work group did agree to review S.1.9. in the future to determine if changes could be developed for that existing requirement that would result in NTEP approved, “stand-alone” taximeters to be in compliance with the HB44 Taximeters Code.

# New Items

## Proposal to amend S.1.10 Non-fare Information

These proposed changes to the existing paragraph S.1.10. “Non-fare Information” are being made in consideration of additional information being presented to the passenger on the primary display. These changes would also address the use of other components in a taximeter system that offer larger areas to display information directed at the passenger. This additional information may not be related to the calculation of fare. The changes shown below are intended to ensure that any display dedicated for use by the passenger include important, relative information about the transaction.

***S.1.10. Non-fare Information.*** *– The fare and extras* ***display area on the primary*** *displays may be used to display auxiliary information provided the meter is in the vacant condition and such information is only displayed for10 seconds, or less. If the information consists of a list of information, the list may be displayed one item after another, provided that each item is displayed for 10 seconds, or less.* ***The indications of fare and extras shall be displayed every 2 minutes for a minimum of 30 seconds.***

*[Nonretroactive as of January 1, 2002]*

(Added 2000)**(Amended 20XX)**

**Background:**

This draft proposal was developed in August 2011 however, was not presented to the USNWG prior to the July 2015 meeting of the USNWG. The item was listed on the USNWG’s September 2012 meeting agenda but due to time constraints was not discussed at that meeting.

Considering the limited size of the primary display on most taximeters in service today, there is insufficient space for displaying anything but the required basic information (e.g., rate in use, fare, extras). It is recognized that some taxi services have installed accessory equipment (primarily passenger information monitors or PIMs) as part of the taximeter system, as a dedicated display for the passenger. These displays may often be used for the display of information that is not related to the transportation services provide such as third-party advertisements, maps, public service announcements, etc.

A recommendation has been made to specify that these additional displays also provide a more complete and detailed listing of information pertaining to the transaction. It is believed that doing so would benefit the passenger by providing more information regarding the transaction and increasing transparency of the transaction.

**Discussion/Conclusion:**

During the July 2015 meeting of the USNWG, the work group held a brief discussion regarding the proposed changes to S.1.10. “Non-fare Information” shown above. The work group members recognized that the first sentence of the requirement contains a provision that the taximeter would be in the “vacant condition” which implies that it would not be registering passenger charges at this time. Also recognized by the USNWG was that the title of the requirement “Non-fare Information” would indicate that this would not be applicable to any type of charges of particular interest to the passenger that would be based on time and/or distance.

Based on these factors, the work group believed that the proposed changes are inappropriate and as such the members did not support any of the proposed changes to S.1.10. The USNWG recommended that no additional changes be proposed at this time.

## Proposal to amend N.1. Distance Tests.

This proposed amendment to the existing paragraph N.1. “Distance Tests” was developed during a meeting of former and active regulatory officials in August 2012. The proposed addition of bulleted point “(d)” in the draft shown below is intended to expressly permit the use of simulated testing of a taximeter during type evaluation.

**N.1. Distance Tests.**

**N.1.1. Test Methods.** – To determine compliance with distance tolerances, a distance test of a taximeter shall be conducted utilizing one or more of the following test methods:

**(a) Road Test.** – A road test consists of driving the vehicle over a precisely measured road course.

**(b) Fifth Wheel Test.** – A fifth wheel test consists of driving the vehicle over any reasonable road course and determining the distance actually traveled through the use of a mechanism known as a “fifth wheel” that is attached to the vehicle and that independently measures and indicates the distance.

**(c) Simulated Road Test.** – A simulated road test consists of determining the distance traveled by use of a roller device, or by computation from rolling circumference and wheel turn data.

**(d) Simulated Lab Test During Type Evaluation – A lab test consisting of the use of an electronic pulse generator or pulse simulator to replicate distance input and a certified stop watch to verify time intervals calculations.**

(Amended 1977 **and 20XX**)

**Background:**

NTEP evaluators have expressed the need for NIST HB44 (which provides the foundation for the basic test and inspection procedures found in NCWM Publication 14) to include the use of simulated electrical pulses as input for the taximeter for distance measuring evaluations. The addition of bullet point “d” is intended to address this need.

**Discussion:**

At the July 2015 meeting of the USNWG, the members debated the need for the proposed change that would include a provision for testing a taximeter in a laboratory. The work group members surmised that this testing would involve the use of a device that generates electrical pulses to simulate the output of a distance measuring mechanism on a taxi (e.g., vehicle’s transmission, anti-lock braking system, or on-board-diagnostics computer). This led the group to determine that the use of a simulator that simply generates electrical pulses will only verify that the taximeter indications advance correctly according to the number of pulses received. This test will not verify however, that the charges calculated by the taximeter are appropriate for any actual distance traveled in the vehicle.

**Conclusion:**

The USNWG recognized that testing using simulated input would not be appropriate, nor adequate to determine a taximeter’s compliance with distance tolerances (as is stated in N.1.1. “Test Methods”). This prompted the members participating at the July 2015 meeting to agree that this proposed change would not be supported and that no additional changes to N.1.1. are needed.

## Proposal to amend UR.3. Statement of Rates

The proposed changes to paragraph UR.3. were developed during a meeting of regulatory officials in August 2011 to address the use of fixed rates as fare charges in some jurisdictions. In addition to the inclusion of fixed (flat) rates and the amended paragraph, changes are being recommended to require that more detailed information pertaining to extras charges is also included on the statement of rates.

**UR.3. Statement of Rates.** – The distance, **~~and~~** time **and flat or fixed** rates for which a taximeter is set, including the initial distance interval and the initial time interval, the local tax rate, and the schedule of extras when an extras indication is provided shall be conspicuously displayed inside the front and rear passenger compartments. The words “Rate,” “Rates,” or “Rates of Fare,” **or “Flat or Fixed Rate**” shall precede the rate statement. The rate statement shall be fully informative, self-explanatory, and readily understandable by the ordinary passenger, and shall either be of a permanent character or be protected by glass or other suitable transparent material. **For extras where the charges vary within a subset of extras (e.g. different toll rates), these extras will be itemized and specifically identified.**

(Amended 1977, 1988, 1990, **~~and~~** 1999, **and 20XX**)

**Background:**

This proposal was included on the USNWG’s September 2012 meeting however, due to a lack of time, this item was not discussed.

**Discussion:**

The USNWG were asked to comment on the proposed changes as shown during their meeting in July 2015. The participants of that meeting reiterated the notions expressed during the discussion that the work group had relating to item I-A (Proposal to amend existing requirement S.1.2) in this summary. Portions of that discussion focused on the definition of the term “fare” and whether it could be appropriately applied to a fixed rate passenger charge.

Some in the work group stated that, because the existing definition of the term “fare” in HB44 Appendix D specified that a fare charge was based on distance traveled or time elapsed, a fixed charge (not based on time or distance) could not be correctly described as a fare. Most members at that meeting agreed however, that it is a generalization within the taxi industry for the term “flat rate” to be applied and interpreted as a fare selection (that does not increment).

**Conclusion:**

The members of the USNWG did not support the addition of the terms “flat rate” or “fixed rate” to the existing UR.3. “Statement of Rates” as shown in this proposal. The participants of the July 2015 meeting agreed that the addition of these terms is unnecessary and overly prescriptive. The work group members agreed that the existing language appropriately describes what is required and that the addition of the wording in this proposal will not add to the clarity of the requirement.

Because the existing requirement, S.1.9. “Recorded Representations” already specifies that extras charges are to be itemized, the members of the USNWG did not support the recommendation for the addition of the final sentence as shown in this proposal.

## Proposal to Add Definition: Automatic Rate Change

The term “automatic rate change” has been used while addressing previous agenda items and may need to be better defined so that it is clearly understood. This item proposes to add a definition for that purpose in HB44.

**automatic rate change. – a predetermined change of the factor applied to the time and/or distance measured used to calculate a fare that occurs one or more times during the trip/journey, and which does not require any operator action upon the taximeter to initiate the change.[5.54]**

**(Added 20XX)**

**Background:**

Because this term is being used to describe a particular type of change to the rate used in the calculation of passenger fare, it was believed necessary to also provide a clear definition in HB44 Appendix D.

**Discussion/Conclusion:**

In a preceding item documented in this summary; item I-D (Proposal to add new requirements S.1.4.1., S.1.4.1.1., and S.1.4.1.2.), the members of the USNWG participating in the July 2015 meeting concluded that to establish a distinction between changes to the rate applied either through a manual or automatic means is not needed and would not be supported by the work group. Due to the conclusion of the USNWG for that item; i.e., no distinction made between the means (automatic/manual) in which a change to the applied rate is made, the work group agreed that it would not be of any benefit to establish the new definition for “automatic rate change” as proposed in this item.

## Recommendation to NTEP: Suggested Change to Section10.4 of NCWM Publication 14

This item seeks to align NCWM Publication 14 (NTEP Checklists and Test Procedures) with NIST Handbook 44. The following excerpts from these two publications provide the requirement relating to the advancement of indications on a taximeter.

*NIST HB 44:*

**S.1.2. Advancement of Indicating Elements.** – Except when a taximeter is being cleared, the primary indicating and recording elements shall be susceptible of advancement only by the movement of the vehicle or by the time mechanism.

(Amended 1988)

|  |  |
| --- | --- |
| *NCWM Publication 14:*10.4 Indicating elements shall advance only by the rotation of the vehicle wheels or by the time mechanism (except when the meter is being cleared.) | [ ]  Yes [ ]  No [ ]  No |

**Background:**

During the USNWG’s meeting on May 26, 2015, it was brought to the work group’s attention that Section 10.4 in NCWM Publication 14 did not completely align with a corresponding requirement in NIST HB44. The requirement that applies to that advancement of indications is intended to prohibit the indicating element from incrementing unless it is done in response to input from either the time mechanism or the distance measuring mechanism.

In NIST HB44, paragraph S.1.2. requires that the …”indicating and recording elements shall be susceptible of advancement only by the movement of the vehicle or by the time mechanism.” While NCWM Publication 14 is generally expected to mirror HB44 requirements, Publication 14 varies slightly in section 10.4 by reading as follows:

“Indicating elements shall advance only by the rotation of the vehicle wheels or by the time mechanism (except when the meter is being cleared.)”

This variation in the wording used in Publication 14 has been identified as a potential problem, primarily due to the use of the phrase …“rotation of the wheels”… that is used in Publication 14 rather than the phrase “…movement of the vehicle…” which is used in HB44. Because the rotation of the wheels on a vehicle does not always equate to the movement of the vehicle (i.e., when the vehicle is tested on test equipment that uses rollers to simulate travel) these two statements should not be used interchangeably.

**Discussion/Conclusion:**

The USNWG was asked to review and comment on this item during the July 2015 meeting. The members were asked also if they supported providing a recommendation to the NTEP Committee to amend NCWM Publication 14 Section 10.4 to harmonize with HB44.

All members present at that meeting agreed that the recommendation to amend NCWM Publication 14 Section 10.4 to align it with HB44, Taximeters Code paragraph S.1.2. would be appropriate. The NIST Technical Advisor will forward that recommendation to the appropriate NTEP officials.

# Attendance

|  |  |  |
| --- | --- | --- |
| Cassidy, James  | Weights and Measures – Cambridge, MA. | jcassidy@cambridgema.gov |
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