The following tables contain lists of existing codes approaching their nonretroactive enforcement dates or recently adopted codes that are enforceable on January 1, 2005. These NIST Handbook 44 code requirements may require action by device manufacturers, owners/operators, or regulatory officials. This information is provided to alert interested parties on upcoming Handbook 44 requirements. Requirements in the tables are paraphrased; therefore, it is recommended that the latest edition of Handbook 44 be consulted for the complete text. Codes that were amended to provide greater clarity or make other editorial changes are not included in this information. A complete report of changes to the handbook is published annually in the Report of the National Conference on Weights and Measures. It is recommended that you contact the statutory authority in your weights and measures jurisdiction for specific details on the enforcement of these code requirements.

Retroactive requirements apply to *all* equipment in commercial service prior to, and in use at any time on or after, the enforcement date. Nonretroactive requirements are enforceable for equipment: (1) manufactured, (2) new and used brought into a jurisdiction, and (3) previously in noncommercial use, then placed into commercial use *after* the effective date. Note: Paragraphs designated with the number [1] include multiple requirements with various enforcement dates.

NIST Handbook 44 Codes (With A January 1, 2005 Nonretroactive Enforcement Date)			
Code Section	**Paragraph**	**Enforcement Date**	**Requirement**
2.20. Scales	**S.1.12. Manual Weight Entries [1]**	**Nonretroactive as of January 1, 2005**	**Use of the manual weight entry feature to accept a gross or net weight value is permitted for scales used in direct sales only when the scale's gross or net weight indications is at zero. Effective January 1, 2005 the feature is also allowable for use in direct sales when the net weight indication is at zero. Manual weight entries must be identified as specified in paragraph S.1.12. on all but standard weight packages.**
2.20.	**Table S.6.3.a. Marking Requirements; Section Capacity and Prefix**	**Nonretroactive as of January 1, 2005**	**Table S.6.3.a. specifies that there must be a "Prefix" to identify "Section Capacity" markings on indicating, weighing, and load receiving elements not permanently attached or covered by a separate NTEP Certificate of Conformance.**
2.20.	**Table S.6.3.b. Notes for Table S.6.3.a. Note 24; Section Capacity and Prefix**	**Nonretroactive as of January 1, 2005**	**New Footnote 24 requires the section capacity marking to be prefaced with the words "Section Capacity" or one of the following abbreviations: "Sec Cap" or Sec C."**
3.30. Liquid-Measuring Devices	**S.2.2.1. Multiple Measuring Elements with a Single Provision for Sealing**	**Nonretroactive as of January 1, 2005**	**A change to the adjustment of any measuring element shall be individually identified.** **Some examples of acceptable identification of a change to the adjustment of a measuring element include, but are not limited to:** **(1) a broken, missing, or replaced physical seal on an individual measuring element;** **(2) a change in a calibration factor for each measuring element;** **(3) a display of the date of or the number of days since the last calibration event for each measuring element; or**

NIST Handbook 44 Codes (With A January 1, 2005 Nonretroactive Enforcement Date)			
Code Section	**Paragraph**	**Enforcement Date**	**Requirement**
			(4) a counter indicating the number of calibaration events per measuring element.
3.30. Liquid-Measuring Devices (continued)	**Table S.2.2. Categories of Device and Methods of Sealing; Devices with Remote Configuration Capability [1]**	**Nonretroactive as of January 1, 2005**	**All devices having remote configuration capability must comply with the sealing requirements of Category 3. That is, an event logger is required in the device; it must include an event counter (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 or through another on-site device. The event logger shall have a capacity to retain records equal to ten 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.)** **The manufacture of Category 2 devices is permissible up to January 1, 2005; *after* January 1, 2005, all new devices with remote communication capability must meet sealing requirements for Category 3.**
3.37. Mass Flow Meters	**Table S.3.5. Categories of Device and Methods of Sealing; Devices with Remote Configuration Capability [1]**	**Nonretroactive as of January 1, 2005**	**All devices having remote configuration capability must comply with the sealing requirements of Category 3. That is, an event logger is required in the device; it must include an event counter (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 or through another on-site device. The event logger shall have a capacity to retain records equal to ten 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.)** **The manufacture of Category 2 devices is permissible up to January 1, 2005; *after* January 1, 2005, all new devices with remote communication capability must meet sealing requirements for Category 3.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
2.20. Scales	**UR.3.9. Use of Manual Weight Entries**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**Manual gross or net weight entries are permitted in the following applications only:** **(1) When a point-of-sale system interfaced with a scale gives credit for a weighed item;** **(2) When an item is pre-weighed on a legal for trade scale and marked with the correct net weight;** **(3) When a device or system is generating labels for standard weight packages;** **(4) When postal scales or weight classifiers are generating manifests for packages to be picked up at a later time; or** **(5) When livestock or vehicle scales are generating weight tickets to correct erroneous tickets.**
2.20.	**N.1.5. Discrimination Test**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**A discrimination test shall be conducted on all automatic indicating scales at or near zero load and at or near maximum test load, and under controlled conditions in which environmental factors are reduced to the extent that they will not affect the results obtained. For scales equipped with an Automatic Zero-Setting Mechanism (AZSM) the discrimination test may be conducted at a range outside of the AZSM range.** **Applies to equipment in use on or after January 1, 1986.**
2.20.	**N.3.2. Field Standard Weight Carts**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Field Standard Weight Carts that comply with tolerances expressed in Fundamental Considerations, paragraph 3.2. may be included as part of the minimum required test load for shift tests and other test procedures.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
2.20.	**Table 3 Parameters For Accuracy Classes Footnote 5; Scale Divisions for a Class III Hopper Scale**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**New Footnote 5 specifies the minimum number of scale divisions for a Class III Hopper Scale used for weighing grain shall be 2000.** **Applies to equipment in use on or after January 1, 1986.**
2.21. Belt-Conveyor Scale Systems	**S.1.5. Rate of Flow Indicators and Recorders**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**A belt-conveyor scale shall be equipped with a rate of flow indicator and an analog or digital recorder. Permanent means shall be provided to produce an audio or visual signal when the rate of flow is equal to or less than 20 % and when the rate of flow is equal to or greater than 100 % of the rated capacity of the scale. The type of alarm (audio or visual) shall be determined by the individual installation.** **Applies to equipment in use on or after January 1, 1986.**
2.21.	**N.2. Conditions of Tests**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**A belt conveyor scale shall be tested after it is installed on the conveyor system with which it is used and under environmental conditions as may normally be expected. Each test shall be conducted with test loads no less than the minimum test load.**
2.21.	**N.2.1. Initial Verification**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**A belt-conveyor scale system shall be tested at an intermediate flow rate, near 35 % flow rates, and normal use capacity. The system may also be tested at any other rate of flow that may be used at the installation.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
2.21. Belt-Conveyor Scale Systems (continued)	**N.2.2. Subsequent Verification**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Subsequent testing shall include testing at the normal use flow rate and other flow rates used at the installation. The official with statutory authority may determine that testing only at the normal use flow rate is necessary for subsequent verifications if evidence is provided that the system is used to operate:** **(a) at no less than 70 % of the maximum rated capacity for at least 80 % of the time (excluding time that the belt is unloaded), or** **(b) with a normal use flow rate that does not vary by more than 10 % of the maximum rated capacity.**
2.21.	**N.2.3. Minimum Test Load**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**The minimum test load shall not be less than the largest of the following values.** **(a) 800 scale divisions,** **(b) the load obtained at maximum flow rate in one revolution of the belt, or** **(c) at least 10 minutes of operation.** **The official having statutory authority may determine that a smaller minimum totalized load down to 2 % of the load totalized in one hour at the maximum flow rate may be used for subsequent tests, provided that:** **(1) the smaller minimum totalized load is greater than the quantities specified in (a) and (b), and** **(2) consecutive official testing with the minimum totalized loads described in N.2.3. (a), (b), or (c) and the smaller minimum test load has been conducted that demonstrates the system complies with applicable tolerances for repeatability, acceptance, and maintenance.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
2.21. Belt-Conveyor Scale Systems (continued)	**N.3.1.2. Initial Stable Zero**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**The conveyor system shall be run to warm up the belt and the belt scale shall be zero adjusted as required. A series of zero-load tests shall be carried out until three consecutive zero-load tests each indicate an error which does not exceed ±0.06 % of the totalized load at full scale capacity for the duration of the test. No adjustments can be made during the three consecutive zero-load test readings.**
2.21.	**N.3.1.3. Test of Zero Stability**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**The conveyor system shall be operated to warm up the belt and the belt scale shall be zero adjusted as required. A series of zero-load tests shall be carried out immediately before the simulated or materials test until the three consecutive zero-load tests each indicate an error which does not exceed ±0.06 % of the totalized load at full scale capacity for the duration of test. No adjustments can be made during the three consecutive zero-load test readings.**
2.21.	**T.1.1. Tolerance Values – Test of Zero Stability**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Immediately after material has been weighed over the belt-conveyor scale during the conduct of the materials test, the zero-load test shall be repeated. The change in the accumulated or subtracted weight on the Master Weight Totalizer during the zero test shall not exceed 0.12 % of the totalized load at full scale capacity for the duration of the test.**
2.21.	**T.3.1.1. Effect on Zero-Load Balance**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**The zero-load indication shall not change by more than 0.035% of the rated capacity of the scale (without the belt) for a change in temperature of 10^{o} C (18^{o} F) at a rate not to exceed 5^{o} C (9^{o}F) per hour.**
2.21.	**UR.1. Use Requirements**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**A belt-conveyor scale system shall be operated between 20 % and 100 % of its rated capacity.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
2.21. Belt-Conveyor Scale Systems (continued)	**UR.2.2. (b) Conveyor Installation; Live Portions of Scale**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**All live portions of the scale shall be protected with appropriate guard devices and clearances, as recommended by the scale manufacturer, to prevent accidental interference with the weighing operation.** **Also see paragraph UR.3.2.**
2.21.	**UR.3.2.(b) Maintenance; Ensure Weighed Material Does Not Adhere to the Belt**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Belt-conveyor scales and idlers shall be maintained and serviced in accordance with manufacturer's instructions and the following:** **. . .** **(b) There shall be provisions to ensure that weighed material does not adhere to the belt and return to the scale system area.** **. . .**
2.24. Automatic Weighing Systems	**Automatic Weighing Systems (AWS) Code**	**Applies to all equipment on January 1, 2005**	**Code Status Upgrade**	**The AWS Code status changed from tentative to permanent. Code requirements are effective nonretroactively January 1, 2005, except tolerances which are retroactively in effect for all equipment. Substantial modifications were made to the Applications, Specifications, Test Notes, User Requirements, and Definitions in the AWS Code. Therefore, the reader should consult specific paragraphs to determine the nature of those changes. For a list of all changes to the code see the Amendment section printed in the front of Handbook 44.**
5.58. Multiple Dimension Measuring Devices	**Multiple Dimension Measuring Device (MDMD) Code**	**Applies to all equipment on January 1, 2005**	**Code Status Upgrade**	**The MDMD Code status changed from tentative to permanent. Code requirements are effective nonretroactively January 1, 2005, except tolerances which are retroactively in effect for all equipment.**
5.58.	**S.1.6. Customer Indications and Recorded Representations**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**Multiple dimension measuring devices or systems must provide information as specified in Table S.1.6. As a minimum, all devices or systems must be able to meet either column I or column II in Table S.1.6.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
5.58. Multiple Dimension Measuring Devices (continued)	**Table S.1.6. Required Information to be Provided by Multiple Dimension Measuring Systems**	**Applies to all equipment on January 1, 2005**	**Table Modified**	**Table S.1.6. was modified to specify the information provided by the Multiple Dimension Measuring System that applies to the equipment manufacturer.**
5.58	**S.1.8. Indications Below Minimum and Above Maximum**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**Except for entries of tare, when objects are smaller than the minimum dimensions identified in paragraph S.1.7. or larger than any of the maximum dimensions plus 9 d, and/or maximum volume marked on the device plus 9 d, or when a combination of dimensions for the object being measured exceeds the measurement capability of the device, the indicating or recording element shall either:** **(a) not display or record any usable values, or** **(b) identify the displayed or recorded representation with an error indication.**
5.58.	**Table S.4.1.b. Notes for Table S.4.1.a. Note 7; Limitation of Use**	**Applies to all equipment on January 1, 2005**	**Note Modified**	**Note 7. specifies that multiple dimension measuring systems are marked to identify the materials, shapes, structures, combination of object dimensions, or object orientations that are inappropriate for the device or those that are appropriate.**
5.58.	**S.3. Systems with Two or More Measuring Elements**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**A multiple dimension measuring system with a single indicating or recording element, or a combination indicating-recording element, that is coupled to two or more measuring elements with independent measuring systems, shall be provided with means to prohibit the activation of any measuring element(s) not in use, and shall have an automatic means to indicate clearly and definitely which measuring element is in use.** **Note: This requirement does not apply to individual devices that use multiple emitters/sensors within a device in combination to measure objects in the same measurement field.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
5.58. Multiple Dimension Measuring Devices (continued)	**N.1.4.1. Test Objects**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Verification of devices may be conducted using appropriate test objects of various sizes and of stable dimensions. Test object dimensions must be known to an expanded uncertainty (coverage factor k = 2) of not more than one-third of the applicable device tolerance. The dimensions shall also be checked to the same uncertainty when used at the extreme values of the influence factors.** **The dimension of all test objects shall be verified using a reference standard that is traceable to NIST (or equivalent national laboratory) and meet the tolerances expressed in NIST Handbook 44 Fundamental Considerations, paragraph 3.2. (i.e., one-third of the smallest tolerance applied to the device).**
5.58.	**T.3. Tolerance Values**	**Applies to all equipment on January 1, 2005**	**Paragraph Modified**	**The maintenance and acceptance tolerance values shall be ± 1 division.**
5.58.	**T.5.2.1. Alternating Current Power Supply**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Devices that operate using alternating current must perform within the conditions defined in paragraphs T.3. through T.6., inclusive, from –15 % to +10 % of the marked nominal line voltage(s) at 60 Hz, or the voltage range marked by the manufacturer, at 60 Hz.**
5.58	**T.5.2.2. Direct Current Power Supply**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**Devices that operate using direct current shall operate and perform within the applicable tolerance at any voltage level at which the device is capable of displaying metrological registrations.**
5.58.	**UR.5. Customer Information Provided**	**Applies to all equipment on January 1, 2005**	**New Paragraph**	**The user of a multiple dimension measuring device or system shall provide transaction information to the customer as specified in Table UR.5.**
5.58	**Table UR.5. Customer Information Provided**	**Applies to all equipment on January 1, 2005**	**New Table**	**New Table UR.5. lists the transaction information that users of Multiple Dimension Measuring Devices are required to provide to customers.**

New or Recently Modified 2005 NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices				
Code Section	**Paragraph**	**Effective Date**	**New or Modified**	**Requirement**
Definition-Appendix D	**measurement field**	**Applies to all equipment on January 1, 2005**	**New Definition**	**A region of space or the measurement pattern produced by the measuring instrument in which objects are placed or passed through, either singly or in groups, when being measured by a single device.[5.58]**
Definition-Appendix D	**retail device**	**Applies to all equipment on January 1, 2005**	**Definition Modified**	**A measuring device primarily used to measure product for the purpose of sale to the end user.[3.30, 3.32, 3.37]**
Definition-Appendix D	**test object**	**Applies to all equipment on January 1, 2005**	**New Definition**	**An object whose dimensions are verified by appropriate reference standards and intended to verify compliance of the device under test with certain metrological requirements.[5.58]**