

Sec. 5.55. Timing Devices

A. Application

A.1. - This code applies to devices used to measure time during which services are being dispensed (such as vehicle parking, laundry drying, and car washing).

A.2. - See also Sec. 1.10; General Code requirements.

S. Specifications

S.1. Design of Indicating and Recording Elements and of Recorded Representations.

S.1.1. Primary Elements.

S.1.1.1. General. - A timing device shall be equipped with a primary indicating element, and may also be equipped with a primary recording element. A readily observable in-service light or other equally effective means that automatically indicates when laundry driers, vacuum cleaners, and car washes are in operation shall be deemed an appropriate primary indicating element.
(Amended 1979)

S.1.1.2. Units. - A timing device shall indicate and record, if the device is equipped to record, the time in terms of minutes for time intervals of 60 minutes or less and in hours and minutes for time intervals greater than 60 minutes.

S.1.1.3. Value of Smallest Unit. - The value of the smallest unit of indicated time and recorded time, if the device is equipped to record, shall not exceed the equivalent of:

- (a) one-half hour on parking meters indicating time in excess of 2 hours;
- (b) six minutes on parking meters indicating time in excess of 1 but not greater than 2 hours; or
- (c) five minutes on all other devices, except those equipped with an in-service light.

(Amended 1975)

S.1.1.4. Advancement of Indicating and Recording Elements. - Primary indicating and recording elements shall be susceptible to advancement only during the mechanical operation of the device, except that clocks may be equipped to manually reset the time.

S.1.1.5. Operation of In-Service Indicator Light. - The in-service light indicator shall be operative only during the time the device is in operation.

S.1.1.6. Discontinuous Indicating Parking Meters. - An indication of the time purchased shall be provided at the time the meter is activated in units of no more than 1 minute for times less than 1 hour and not more than 2 minutes for times of 1 hour or more. Convenient means shall be provided to indicate to the purchaser the unexpired time.
(Added 1975 and Amended 1976)

S.1.2. Graduations.

S.1.2.1. Length. - Graduations shall be so varied in length that they may be conveniently read.

S.1.2.2. Width. - In any series of graduations, the width of a graduation shall in no case be greater than the width of the minimum clear interval between graduations and the width of main graduations shall be not more than 50 % greater than the width of subordinate graduations. Graduations shall in no case be less than 0.2 mm (0.008 in) in width.

S.1.2.3. Clear Interval Between Graduations. - The clear interval shall be not less than 0.75 mm (0.03 in). If the graduations are not parallel, the measurement shall be made:

- (a) along the line of relative movement between the graduations at the end of the indicator, or
- (b) if the indicator is continuous, at the point of widest separation of the graduations.

S.1.3. Indicators.

S.1.3.1. Symmetry. - The index of an indicator shall be symmetrical with respect to the graduations, at least throughout that portion of its length associated with the graduations.

S.1.3.2. Length. - The index of an indicator shall reach to the finest graduations with which it is used, unless the indicator and the graduations are in the same plane, in which case the distance between the end of the indicator and the ends of the graduations, measured along the line of the graduations, shall be not more than 1.0 mm (0.04 in).

S.1.3.3. Width. - The width of the index of an indicator in relation to the series of graduations with which it is used shall be not greater than

- (a) the width of the widest graduation, and
- (b) the width of the minimum clear interval between the graduations.

S.1.3.4. Parallax. - Parallax effect shall be reduced to a practicable minimum.

S.1.4. Printed Tickets. - A printed ticket issued or stamped by a timing device shall have printed clearly thereon:

- (a) the time and day when the service ends and the time and day when the service begins, except that a self-service money-operated device that clearly displays the time of day need not record the time and day when the service begins; or
 - (b) the time interval purchased, and the time and day that the service either begins or ends.
- (Amended 1983)

S.2. Marking Requirements, Operating Instructions. - Operating instructions shall be clearly stated on the device.

N. Notes

N.1. Test Method. - A timing device shall be tested with a timepiece with an error of not greater than plus or minus 15 seconds per 24-hour period. In the test of timing devices with a nominal capacity of 1 hour or less, stopwatches with a minimum division of not greater than one-fifth second shall be used. In the test of timing devices with a nominal capacity of more than 1 hour, the value of the minimum division on the timepiece shall be not greater than 1 second. Time pieces and stopwatches shall be calibrated with standard time signals as described in National Institute of Standards and Technology Special Publication 432, NIST Time and Frequency Dissemination Services, or any superseding publication. (Amended 1978)

N.2. Broadcast Times and Frequencies. - Time and frequency standards are broadcast by the stations listed in Table N.2.

Table N.2.* Broadcast Times and Frequencies			
Station	Location, Latitude, Longitude	Frequency (MHz)	Times of Transmission (UTC)
WWV	Fort Collins, Colorado 40E41' N 105E02' W	2.5 5.0 10.0 15.0 20.0	Continuous
WWVH	Kauai, Hawaii 21E59' N 159E46' W	2.5 5.0 10.0 15.0	Continuous
CHU	Ottawa, Canada 45E18' N 75E45' W	3.330 7.335 14.670	Continuous

*From NIST Special Publication 559, "Time and Frequency Users' Manual," 1990. (Added 1988)

T. Tolerances

T.1. Tolerance Values. - Maintenance and acceptance tolerances for timing devices shall be as follows:

T.1.1. For Timing Devices Other Than Those Specified in T.1.2. and T.1.3. - The maintenance and acceptance tolerances shall be:

- (a) On Overregistration: 5 seconds for any time interval of 1 minute or more; and (Amended 1986)
- (b) On Underregistration: 6 seconds per indicated minute. (Amended 1975)

T.1.2. For Time Clocks and Time Recorders. - The maintenance and acceptance tolerances on overregistration and under registration shall be 3 seconds per hour, but not to exceed 1 minute per day. (Amended 1975)

T.1.3. On Parking Meters. - The maintenance and acceptance tolerances are shown in Table T.1.3.

Table T.1.3. Maintenance and Acceptance Tolerances for Parking Meters		
Maintenance and Acceptance Tolerances		
Nominal time capacity	On overregistration	On underregistration
30 minutes or less	No tolerance	10 seconds per minute, but not less than 2 minutes
Over 30 minutes to and including 1 hour	No tolerance	5 minutes plus 4 seconds per minute over 30 minutes
Over 1 hour	No tolerance	7 minutes plus 2 minutes per hour over 1 hour

T.2. Tests Involving Digital Indications or Representations. - To the tolerances that would otherwise be applied, there shall be added an amount equal to one-half the minimum value that can be indicated or recorded.

UR. User Requirements

UR.1. Statement of Rates. - The price in terms of money per unit or units of time for the service dispensed and the number of coins the device will accept and be activated by at one time, shall be clearly, prominently, and conspicuously displayed.

(Amended 1976)

UR.2. Time Representations. - Any time representation shall be within plus or minus 2 minutes of the correct time in effect in the area, except on an individual clock used only for "time out"; in addition, the time indication of the "time-out" clock shall be the same as or less than that of the "time-in" clock.

(Amended 1975)