



TTB Public Guidance

July 21, 2014

Approval of Alternative Devices for Determination of Proof of Distilled Spirits For Tax Determination Purposes; Guidance and Performance Standards

This document describes the Alcohol and Tobacco Tax and Trade Bureau (TTB) process for approving the use of devices other than a hydrometer and thermometer for determining the proof of distilled spirits for tax purposes. It also sets out the general performance standards that devices must meet in order to be approved for this use.

Gauging Distilled Spirits

The Internal Revenue Code of 1986, as amended, imposes a tax of \$13.50 per proof gallon on distilled spirits produced in or imported into the United States ([26 U.S.C. 5001\(a\)](#)). In order for a distilled spirits plant (DSP) proprietor to determine the taxes it owes on spirits removed from its bonded premises, the proprietor must “gauge” the spirits, that is, determine the quantity and proof of the spirits ([27 CFR 19.281](#)). Under § 19.281, DSP proprietors must gauge spirits in accordance with [27 CFR part 30](#) (the Gauging Manual).

Determining Proof of Distilled Spirits

Except as otherwise authorized by the appropriate TTB officer (in this case, the Director of the Scientific Services Division), the Gauging Manual requires DSP proprietors to determine the proof of spirits using a hydrometer and thermometer as provided in [27 CFR 30.31](#). The hydrometer uses displacement to measure the density of the spirits, and the thermometer measures the temperature of the spirits. These measurements are then used in conjunction with other required procedures referenced in § 30.31 to determine the proof of the spirits.

Under § 30.21(c), the Director of the Scientific Services Division may approve a method other than a hydrometer and thermometer to determine the proof of spirits. TTB has publicly authorized the use of certain density meters for determining the proof of spirits in lieu of using a hydrometer and thermometer. In addition, TTB has also authorized the use of other proofing devices under § 30.21(c) in response to individual requests for approval. The devices TTB has approved publicly and individually are listed at the end of this document.

In the case of density meters used for determining the proof of distilled spirits for tax purposes, TTB has approved such devices when they have a density accuracy of at least $\pm 1 \times 10^{-5} \text{ g/cm}^3$ ($\pm 0.00001 \text{ g/cm}^3$) and a temperature accuracy of at least $\pm 0.01 \text{ }^\circ\text{C}$.

A device with this density accuracy can accurately determine proof across the spectrum of proof values ranging from 1 to 200 proof.

Approval of Density Meters and Other Devices to Determine Proof of Distilled Spirits

In cases where TTB has authorized the use of specific density meters to proof spirits for tax purposes under § 30.31(b), TTB does not require DSP proprietors to submit individual requests to use those meters. Meters that TTB has approved for this purpose are listed in the next section.

If a device is not listed in the next section, but a DSP proprietor believes the device meets the standards in the regulations for proofing spirits in lieu of using a hydrometer and thermometer, the proprietor must submit a request and obtain specific approval from TTB before using the device. All requests for approval must be submitted in writing to the Director, Scientific Services Division, TTB, 6000 Ammendale Road, Beltsville, MD 20705.

Requests for approval of devices that employ established techniques (e.g., density meters that use oscillating U-tube sensors) should be accompanied by the technical specifications of the device to enable TTB to determine whether the device meets TTB standards for proofing spirits. For devices that use new or emerging measuring techniques, more detailed performance data should be submitted. Detailed performance data that assist TTB's evaluation include, but are not limited to, data on accuracy, precision, and linear range, as well as equivalency studies with TTB-approved device(s).

Currently Approved Proofing Devices

TTB has approved the following devices for proofing spirits for tax purposes. These devices may be used without obtaining approval of an individual request under § 30.31(b). TTB updates this list as warranted. The last update was March 1, 2017.

Instrument	Company	Type
DMA 5000 or 5000M	Anton Paar	Benchtop Oscillating U-tube
DMA 4500M-EC	Anton Paar	Benchtop Oscillating U-tube
DMA 55*	Mettler/Paar	Benchtop Oscillating U-tube
DMA 58*	Anton Paar	Benchtop Oscillating U-tube
DPRn 417/427	Anton Paar	In-line Oscillating U-tube
DPR 2000*	Mettler/Paar	In-line Oscillating U-tube
DA-310*	Mettler Toledo	Benchtop Oscillating U-tube
DE-50*	Mettler Toledo	Benchtop Oscillating U-tube
DE-51*	Mettler Toledo	Benchtop Oscillating U-tube
DM-45	Mettler Toledo	Benchtop Oscillating U-tube
DM-50	Mettler Toledo	Benchtop Oscillating U-tube
DDM 2911 PLUS	Rudolph Research Analytical	Benchtop Mechanical Oscillator
DSRn 427	Anton Paar	In-line Oscillating U-tube
L-Dens 7500	Anton Paar	In-line Oscillating U-tube
L-Comm 5500	Anton Paar	In-line Oscillating U-tube

*These instruments are no longer marketed, but they are still approved for use.